ELDERLY SINGAPOREANS' PERCEPTIONS OF UNDERGOING JOINT REPLACEMENT SURGERY: A QUALITATIVE STUDY

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Declaration

I hereby declare that this thesis is my original work and it has been written by me in its entirety. I have duly acknowledged all sources of information which have been used in the thesis.

This thesis has also not been submitted for any degree in any university previously.

Rosy Tay Swee Cheng
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Summary

Background

The rapidly growing ageing population in Singapore is experiencing an increasing incidence of chronic illnesses such as osteoarthritis, resulting in a multitude of complex physiological, psychological and sociological comorbidities that place a socioeconomic burden on patients, their families and society. Total hip and knee replacements can alleviate pain and disability, restore function and improve a patient's quality of life. It is important for the nursing profession to understand and gain insights into the complexity of this chronic condition from the perspective of patients in order to provide targeted physiological, psychological and culturally appropriate nursing care within the Singaporean context. To date, no qualitative studies have explored the perception of elderly Singaporeans undergoing joint replacement surgery.

Aim

The primary aim of this study was to explore the perception of elderly Singaporeans undergoing joint replacement surgery. This study specifically sought to examine how elderly Singaporeans mentally and socially adjust in order to cope with their perioperative journeys.

Methodology

A descriptive qualitative design was utilised and guided by the premises of the Chronic Care Model (CCM) and Social Cognitive Theory (SCT). Convenience sampling was utilised to recruit 14 elderly participants undergoing total hip replacement and total knee replacement surgeries at a local acute tertiary hospital. Data were collected over the perioperative period using semi-structured

interviews over two time points of the preoperative and postoperative periods until data saturation was reached. Thematic analysis was employed with veracity and trustworthiness to ensure the rigor of the analysis.

Findings

Eight themes and 21 subthemes emerged from the analysis of each repeated interview. An overarching theme of 'journey to regain life' depicted the three critical phases of the perioperative journey as: 'beginning of pain', 'finding solution' and 'recovering'. The ensuing themes were: 1) a deteriorating, disabled and limiting body wanting a functioning, abled body; 2) gathering information to decide surgery; 3) living in fear, anxiety and uncertainty in anticipation of surgery; 4) receiving information in preparation for surgery; 5) detachment from the body during surgery; 6) adapting to an unfamiliar body; 7) cultural beliefs/practice on the recovering body; and 8) adjusting to a new body and life again. The 'journey to regain life' model depicted the emic perspective of participants' personal beliefs and cultural value systems, which influenced their perceptions, and mental and social adjustments in coping with joint replacement surgery. The multi-ethnicity of the participants underpinned the mental and social readjustments in adjusting to a new body and life.

Conclusion

This study identified the need for nursing administrators to review their nursing manpower, specifically the community nursing workforce, and staff training in order to meet the needs of the ageing population, as well as the increasing demands of joint replacement surgery. There is a need to implement structured perioperative patient education to ensure that quality nursing care is both patient- and culture-centric. Lastly, the infrastructure for community resources needs to be set up to support elderly participants undergoing joint replacement surgery in Singapore.

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Note: Figure numbers include the chapter number as a prefix.

List of Abbreviations

A&E	Accident and Emergency
AIC	Agency of Integrated Care
AIHW	Australian Institute of Health and Welfare
ALCNS	Alice Lee Centre of Nursing Studies
CCM	Chronic Care Model
CET	continuing education and training
CHM	Chinese Herbal Medicine
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CIRB	Centralised Institutional Review Board
COPD	Chronic Obstructive Pulmonary Disease
GDP	gross domestic product
GP	general practitioner
HDP	Housing Development Board
HRQOL	Health-Related Quality of Life
ICIC	Improving Chronic Illness Care
ILTC	intermediate and long-term care
MASTARI	Meta Analysis of Statistics Assessment and Review Instrument
MOH	Ministry of Health
MOHNRC	Ministry of Health Nursing Research Committee
NEHR	National Electronic Health Records
PAT	Preadmission Testing
PCA	patient-controlled analgesia
PET	pre-employment education and training
POPM	postoperative pain management
QARI	Qualitative Assessment and Review Instrument
QOL	Quality of Life
RWJF	Robert Wood Johnson Foundation
SCT	Social Cognitive Theory

SDS	Same Day Surgery
TED	thromboembolism-deterrent
THA	total hip arthroplasty
THR	total hip replacement
TKA	total knee arthroplasty
TKR	total knee replacement
VAS	Visual Analogue Scale
WHO	World Health Organization

Glossary of Terms

Perioperative

Perioperative is defined as the 'preoperative, intraoperative and postoperative phases of surgical intervention which commences from the time the patient is informed about surgery till the recovery phase after surgery' (Keogh, 2011, p. 129).

Perioperative journey

Perioperative journey 'begins when the patient is informed of the need for surgery, includes the surgical procedure and recovery, and continues until the patient resumes his or her usual activities. The surgical experience can be segregated into three phases: (1) preoperative, (2) intraoperative, and (3) postoperative' (Goodman & Spry, 2014, p. 1).

Osteoarthritis

Osteoarthritis is defined by the Subcommittee on Osteoarthritis of the American College of Rheumatology Diagnostic and Therapeutic Criteria Committee as 'a heterogeneous group of conditions that lead to joint symptoms and signs which are associated with defective integrity of articular cartilage, in addition to related changes in the underlying bone at the joint margins' (Altman et al., 1987, p. 1039).

Elderly/Aged

In Singapore, the elderly population is defined as 'persons aged 65 years and older' (Singapore Department of Statistics, 2011, p. 8).

Older adult

A person aged 65 or older (World Health Organization, 2014).

Joint replacement surgery

Joint replacement surgery involves the removal of worn-out cartilage from bilateral parts of the joint. Resurfacing is then performed with the joint with a metal and plastic replacement implant that functions as a normal joint. Most replacement surgeries involve mainly the hip or knee (American College of Rheumatology, 2013).

Perception

Perception is defined as 'mode of apprehending reality and experience through the senses, thus enabling discernment of figure, form, language, behavior, and action. Individual perception influences opinion, judgment, understanding of a situation or person, meaning of an experience, and how one responds to a situation' (Munhall, 2008, p.607).

Chapter 1: Introduction

1.1 Introduction

As a result of the rapidly ageing population around the world, healthcare delivery has shifted its focus from the treatment to management of chronic diseases, which are silent pandemics that have emerged in conjunction with the changing demography of the ageing population worldwide. Major chronic diseases that affect the aged population include cardiovascular conditions, hypertension, stroke, diabetes, cancer, chronic obstructive lung disease, osteoarthritis, mental health and visual impairment (World Health Organization (WHO), 2008). Chronic diseases require continual and long-term care and result in a broad range of health-related morbidities and comorbidities (WHO, 2008).

As a result of greater longevity and an increasing number of aged people suffering from chronic diseases globally, healthcare systems have been confronted with the challenge of managing the burden of chronic diseases in the twenty-first century (Nolte & McKee, 2008). In relation to osteoarthritis, a range of associated pain and disability characteristics over time have contributed to patients' complex decision-making processes when undergoing joint replacement surgery.

This thesis aims to explore the perceptions of elderly Singaporeans undergoing joint replacement surgery. For the purpose of this study, the perioperative journey encompassed the periods when the elderly patients were diagnosed with osteoarthritis, experienced debilitating pain and disability, decided to undergo surgery and subsequently had surgery, as well as the period of rehabilitation.

The next section provides the contextual background in relation to the chronicity of disease and burden that osteoarthritis places on the elderly population in Singapore and globally.

1.2 Background

This section describes the key demographics and socioeconomic features of elderly populations around the world, the etiology, epidemiology, chronicity and burden of disease associated with osteoarthritis, the rationale for joint replacement surgery as the treatment of choice for severe osteoarthritis, and the healthcare system in Singapore.

1.2.1 Ageing population

Singapore has a population of 5.3 million people, comprising 3.8 million citizens and permanent residents and 1.5 million non-residents. The number of Singapore residents aged 65 years and above rose from 9.9 per cent in 2012 to 10.5 per cent in 2013 (Singapore Department of Statistics, 2013). In Singapore, elderly is defined as 'persons aged 65 years and above' (Singapore Department of Statistics, 2011, p. 8). The elderly population grew from 7.3 per cent of the total population in 2000 to 9 per cent in 2010, and it is projected to reach 20.5 per cent in 2030 and 28.9 per cent in 2050 (Singapore Department of Statistics, 2011; United Nations, 2012). The number of Singapore residents aged 65 or older is expected to multiply threefold from the current 300,000 to 900,000 in 2030. Therefore, one in every five residents will be a senior citizen or elderly (Ministry of Community Development, 2009). Singapore faces the challenge of a rapidly ageing population, and the acceleration of aging is forecast to exceed that of countries such as the United Kingdom (24.7 percent) and Australia (22 percent) in 2050 (United Nations, 2012).

Singapore will be defined as an aged society by around 2019 (Singapore Department of Statistics, 2013). An aged society is defined by the WHO as one in which 14 per cent or more of the population is aged 65 years or above

(International Longevity Centre, 2011). In Singapore, the declining birth rate, with a total fertility rate of 1.28 from 2010 to 2015, has similarly led to increasing longevity among the older population (United Nations, 2012). In 1994, the ratio of old age dependency was one elderly dependent person to seven working adults, increasing to one to two in 2013 (Dawson et al., 2010). Such a dramatic change in the age dependency ratio of Singapore's demographic landscape will create profound social and financial issues, which will in turn affect healthcare delivery. The forecast increase in life expectancy is the strongest predictor of chronic disease (Dawson et al., 2010). Elderly Singaporeans who are coping with comorbidities such as diabetes and cardiovascular diseases will therefore face more difficulties.

This section describes the etiology, epidemiology, chronicity and burden of disease associated with osteoarthritis in Singapore and globally.

1.2.2 Etiology, epidemiology, chronicity and burden of disease associated with osteoarthritis

This section explains the etiology, epidemiology, chronicity and burden of disease associated with osteoarthritis in Singapore and globally.

Etiology

The etiology of osteoarthritis has been defined as follows; 'multifactorial, including inflammatory, metabolism, obesity and mechanical reasons. A number of environmental risk factors, such as obesity, occupation, and trauma, may inititiate various pathological pathways." (Sarzi-Puttini, Cimmino, Scarpa, Caporali, Parazzini, Zaninelli, Atzeni, & Canesi, 2005, p.1).

Epidemiology

Osteoarthritis mainly affects the middle-aged and elderly people and causes chronic debilitating pain and disability (Arthritis Foundation, 2013). Globally,

osteoarthritis affects an estimated 9.6% of men and 18% of women ≥ 60 years (Wolf & Pfleger, 2003). However, younger people will be affected by osteoarthritis as a result of injury or overuse (Arthritis Foundation, 2013). In Singapore, the prevalence of osteoarthritis in Singapore is unknown. A Singapore population survey conducted in 1991 found that arthritis and rheumatism related to osteoarthritis was common in about 25% of the different ethnic groups (Ying Ying & Thumboo, 2013).

Chronicity and burden of osteoarthritis

The associated pain and disability have a significant effect on the mobility, activities of daily living and quality of life of elderly people. Osteoarthritis poses an increasing and substantial personal and societal burden on the elderly population as a result of impaired quality of life, socioeconomic issues and healthcare delivery (Luong, Cleveland, Nyrop & Callahan, 2012; WHO, 2013). Osteoarthritis represents a major cause of morbidity, long-term disability and social isolation, especially when the hip and knee are involved (Gobelet, Luthi, Al-Khodairy & Chamberlain, 2007). Elderly people with severe osteoarthritis experience worsening pain due to the progressive degeneration of their joints (Dawson, Fitzpatrick, Fletcher & Wilson, 2004).

Globally, it has been estimated that 80 per cent of people with osteoarthritis encounter limitations in movement, and 25 per cent are unable to perform independent activities of daily living (WHO, 2013). Osteoarthritis is the eleventh leading cause of chronic disease burden, as measured by disability-adjusted life years in the Singapore Burden of Disease Study in 2004 (Phua, Chua, Ma, Heng & Chew, 2009), and it has contributed significantly to increasing healthcare costs (Gobelet et al., 2007).

An increasing number of studies have analysed the effects of osteoarthritis on the environment—for example, physical functioning and mental status (Knight et al., 2011; Wahl & Lang, 2003). However, the majority of studies have not

focused on the elderly, who are particularly vulnerable to effects in their social and physical environments (Robert & Li, 2001; Wahl & Lang, 2003).

In the United States of America, Canada, United Kingdom, France and Australia, osteoarthritis is estimated to be 1 to 2.5 percent of gross national product (March & Bachmeier, 1997). In Australia, osteoarthritis accounts for 21 per cent of total healthcare costs of musculoskeletal disorders (Olafssen, 2008). In Singapore, the costs of knee and hip osteoarthritis are known to be as high as Western countries (Xie, Thumboo, Fong, Lo, Yeo, Yang & Li 2007). The direct costs of osteoarthritis are medical consultations, medications and surgical procedures. The direct costs to patients ranged from $1320 to $12,140 (Singapore Dollars) in 2003 and to society ranged from $2939 to $17,879. In addition, the indirect costs include absence from work for both patients and caregivers (Xie et al., 2007).

The next section describes the rationale for joint replacement surgery as the treatment of choice for severe osteoarthritis.

1.2.3 Joint replacement surgery

Joint replacement surgery for osteoarthritis is recommended for moderate or severe osteoarthritis where the knee and hip joints have been continually stressed over one's lifetime (Kaplan, 2008; Martin & Thornhill, 2011). In Singapore, joint replacement surgery is considered the preferred and standard treatment option for elderly people who suffer from severe osteoarthritis.

In an Australian study, joint replacement surgery resulted in significant improvement in the quality of life of the population experiencing severe osteoarthritis (Higashi & Barendregt (2011). Despite the healthcare costs involved, joint replacement surgery are highly cost-effective and has a positive impact on quality of life. The intangible gains such as the absence of pain, increasing mobility and function, a sense of well-being, employment participation and decreasing medical consultation, care from caregivers and

reducing long term healthcare costs leads to the cost-effectiveness of joint replacement surgery (Daigle, Weinstein & Katz, 2012; SingHealthgroup, 2014).

Total hip replacement (THR) and total knee replacement (TKR) are the most commonly performed orthopaedic procedures for severe hip and knee osteoarthritis (Kaplan, 2008; Martin & Thornhill, 2011). Joint replacement surgery aims to alleviate pain, restore function, alleviate disability and improve quality of life (Fujita, Makimoto & Hotokebuchi, 2006; Hamel, Toth, Legedza & Rosen, 2008; Skerker & Mulford, 2008; Weisman & Rinaldi, 2010).

In Singapore, the number of cases of THR rose from 386 in 2009 to 596 in 2012 (Ministry of Health (MOH), 2013b). There was a marked increase in the number of TKRs, as the figures from the private hospitals are included from 2011 onwards. Similarly, TKRs has also increased in this time period (2,001 in 2009 and 2,804 in 2012) (see Appendix 1.1). These figures are conservative because they only reflect operations performed in restructured (public) hospitals from 2009 to 2012, as well as some private hospitals from 2011 (MOH, 2013b). The data show that the number of TKRs was greater than the number of THRs. This increase in the Singapore data is comparable to that of the United States, where it has been reported that THR and TKR rates have increased steadily (Singh et al., 2010). The average length of stay in restructured hospitals in Singapore for THR patients varied from six and a half days to 15 days, while the average stay for TKR patients was four to seven days (MOH, 2013b). Singapore General Hospital, an acute tertiary hospital, conducted one of the highest numbers of THRs and TKRs—approximately 50 per cent of all joint replacement surgery in Singapore—from 2002 to 2012 (see Appendix 1.2).

In Singapore, the majority of surgical inpatients are admitted as Same Day Surgery (SDS), which means that patients are only admitted on the day of their surgery. Similarly, patients undergoing THRs and TKRs are admitted as SDS.

The next section presents an overview of the socio-demographics of the elderly population in Singapore.

1.2.4 Overview of the socio-demographics of the elderly population in Singapore

This section provides an overview of the contextual background of the elderly population in Singapore in relation to ethnic composition, gender, income, housing, type of living arrangements, education and language profile. This contextual background relates to the social determinants which contributed to the social circumstances which informed elderly participants' perioperative journey.

1.2.4.1 Ethnic composition in Singapore

Singapore is a multi-racial society with a population consisting of 74.2 per cent Chinese, 13.3 per cent Malays, 9.2 per cent Indians and 3.3 per cent others (Singapore Department of Statistics, 2013). The religious and cultural diversity of elderly Singaporeans affects their healthcare decisions regarding managing their state of osteoarthritis and deciding to undergo joint replacement surgery.

1.2.4.2 Gender, income, housing and living arrangements of the elderly in Singapore

The gendered breakdown of Singapore population as of 2011 was that females residents outnumbered males in Singapore's elderly population due to longer life expectancy. In 2011, the ratio of people aged 65 years and above was 7.95 men to 10 women (Wong & Teo, 2011).

The median monthly household income among employed residents was $7,040 in 2011 compared to $7,570 in 2012, constituting a growth of 7.5 per cent in nominal terms (Department of Statistics, 2012). The Singapore

government has gradually introduced several schemes, such as Growth Dividends and Workfare Income Supplement, as well as rebates on utilities, rental, service and conservancy charges, to assist in supplementing individual and household income (Wong & Teo, 2011).

In 2010, elderly people (63 per cent) in residential housing generally relied on allowances given by their children as their main source of financial support. A higher ratio of single elderly people are dependent on employment income, business ventures, life savings or interests earned from other revenues. However, more elderly residents have continued working, as there are fewer children who can support them. The number of elderly people earning less than $1,000 per month increased to 35,000 over the past decade. The adult children of the elderly have struggled to cope with the rising costs of living and supporting both their parents and their own families (Basu, 2014).

1.2.4.3 Types of dwellings of the elderly in Singapore

In Singapore, 97 per cent of the elderly resident population predominately resided in government housing, such as Housing Development Board (HDB) four-room (29 per cent) and three-room (24 per cent) flats in 2011. The remainder of the elderly lived in old-age and nursing homes (Wong & Teo, 2011). In 2011, in comparison with the general population, a higher number of elderly residents stayed in government housing of HDB one-room and two-room flats (7.3 per cent versus 3.2 per cent), HDB three-room flats (24 per cent versus 17 per cent) and landed properties (9.4 per cent versus 6.6 per cent) (Wong & Teo, 2011). There was much debate and deliberation about building a retirement village in Singapore over twenty-years as it opposed the cultural values of filial piety. The first retirement village is expected to be completed in 2017. However, elderly Singaporeans prefer to reside in the comfort of their own home with their family members (Basu, 2013).

The majority of residents receive a government subsidy and live in housing managed by the HDB, which is a subsidiary of the Singapore government

(Department of Statistics, 2012). In 2012, resident households received an average amount of $1,160 per household member in subsidies from the various governmental schemes. Residents in HDB one and two-room flats received an annual average of $5,270 per household member. Residents in four-room, five-room and executive HDB flats received a lower subsidy from the government. Residents who lived in private properties, such as condominiums and landed properties, received a much lower housing subsidy from the government (Department of Statistics, 2012) which includes healthcare subsidy.

Singapore has largely retained its Asian value of filial piety in its intergenerational social structure; the older generation usually stays in the housing unit with their children. In 2010, 86 per cent of elderly residents lived in residential housing with their spouse and children (Wong & Teo, 2011), while 8.2 per cent lived alone. Elderly Singaporean females were more likely to be widowed and living with their children because of their longer life expectancy (Wong & Teo, 2011).

1.2.4.4 Educational profile of the elderly in Singapore

The elderly population in Singapore tends to have a lower education profile compared to the non-elderly population because of the lack of opportunity for formal education in the past. In 2010, 86 per cent of elderly females were found to have less than a secondary qualification compared to 71 per cent of elderly males (Wong & Teo, 2011). This again demonstrates the social structure among the older generation, where male offspring were more valued than female offspring in the past, so they were given more educational opportunities (Wong & Teo, 2011). Therefore, elderly males are generally more educated because they are traditionally the wage earners, whereas their female counterparts are usually housewives.

1.2.4.5 Language profile of the elderly in Singapore

English is the predominant language in Singapore. However, it is less predominant among the elderly compared to the general population residing in residential housing (Wong & Teo, 2011). Among the different elderly ethnic groups, English is spoken by 12 per cent of Chinese, 3.1 per cent of Malays and 27 per cent of Indians. Chinese Singaporeans are a relatively heterogeneous population in the aspect of dialect origin. There are more than 20 dialects, but the more common dialects are Cantonese, Hokkien, Teochew and Hakka. The Chinese speak Mandarin and various dialects, while Malays speak Bahasa Melayu and Indians speak Tamil (Wong & Teo, 2011).

The next section presents an overview of the healthcare system in Singapore, including healthcare delivery and governmental healthcare insurance schemes.

1.2.5 Overview of the healthcare system in Singapore

This section provides an overview of the healthcare systems of private and restructured hospitals, as well as insurance schemes for the general and elderly populations in Singapore.

Singapore has adopted a mixed healthcare service delivery. The public sector largely dominates acute care delivery, providing 80 per cent of the healthcare services, while the private sector provides 80 per cent of the step-down services, such as nursing homes, community hospitals, hospices and outpatient services (MOH, 2013a).

The healthcare system consists of both restructured and private hospitals. Restructured hospitals in Singapore are governed by the MOH, whose central tenet is that all residents are guaranteed affordable and quality basic medical services (MOH, 2013c). The healthcare system has been restructured towards an integrated care model to provide holistic and integrated patient care within the six regional healthcare clusters. Each healthcare cluster is well supported

by a regional hospital, a primary, intermediate and long-term care (ILTC) sector and support services to deliver patient-centric care (MOH, 2013c). The healthcare clusters are: Alexandra Health Private Limited, Eastern Health Alliance, Jurong Health Services, National Healthcare Group, National University Health System and SingHealth Private Limited. Each healthcare cluster provides geographically integrated care in Singapore. Nationally, the Agency of Integrated Care (AIC) oversees the effective and smooth care transition of patients from one care setting to another. Another MOH initiative, called National Electronic Health Records (NEHR), provides a nationwide electronic medical records system (MOH, 2013c).

Currently, Singapore spends 4 per cent of its gross domestic product (GDP) on healthcare, but this figure is expected to increase with the ageing population (MOH, 2013a). The Singapore government has implemented several insurance schemes to provide a buffer to healthcare costs for its ageing population. Central to the healthcare financing system is the '3M' system—namely the Medisave (compulsory savings, initiated in 1984), MediShield (low-cost basic medical insurance scheme, initiated in 1990) and Medifund (endowment fund to help needy Singaporeans, initiated in 1993)—which is based on the premise of individual responsibility and affordable healthcare for all (MOH, 2013a). MOH has also initiated another low-cost insurance scheme, called MediShield Life, which aims to provide lifetime insurance coverage to all Singapore residents, regardless of any health outcomes at the end of 2015 (MOH, 2014a). In addition, other schemes commenced in 2002, such as Eldershield, which is a severe disability insurance scheme that is initiated from the age of 40 to risk-pool against risk financing of severe disability (MOH, 2013a).

1.2.5.1 Elderly healthcare scheme in Singapore

In February 2014, the Singapore government initiated the Pioneer Generation Package to thank 450,000 elderly people (aged over 65 years) for their contribution to building the nation and raising the next generation of Singaporeans. With this package, elderly people receive extra subsidies for

MediShield Life (lifetime insurance package), outpatient treatment and annual Medisave top-ups (MOH, 2014b). To be eligible for the Pioneer Generation Package, residents must be Singapore citizens who were aged 16 years or above in 1965, aged 65 years or above in 2014, or who had assumed citizenship by 31 December 1986 (MOH, 2014b).

The next section presents the aim of study, which guides the research questions and the conduct of this study.

1.3 Aim of Study

The primary aim of this study is to explore elderly Singaporeans' perceptions of undergoing joint replacement surgery. The secondary aim is to examine how elderly Singaporeans adjust mentally and socially before, during and after undergoing joint replacement surgery.

The next section presents the five research questions that served to explore the perceptions of elderly Singaporeans undergoing joint replacement surgery.

1.4 Research Questions

The research questions aim to explore elderly Singaporeans' perceptions of undergoing joint replacement surgery in order to understand how cultural values, personal beliefs, and mental and social adjustments informed their journey during the preoperative, intraoperative and postoperative phases. This study has been designed to answer the following five research questions:

1. How do cultural values inform the perceptions of elderly Singaporeans undergoing joint replacement surgery?
2. How do personal beliefs inform the perceptions of elderly Singaporeans undergoing joint replacement surgery?
3. What is the nature of the mental adjustments of elderly Singaporeans undergoing joint replacement surgery?

4. What is the nature of the social adjustments of elderly Singaporeans undergoing joint replacement surgery?
5. How do elderly Singaporeans cope when undergoing joint replacement surgery?

The next section highlights the significance of a qualitative understanding of elderly participants' perceptions when undergoing joint replacement surgery.

1.5 Significance of the Study

In Singapore, qualitative studies on the perception of elderly persons undergoing joint replacement surgery have yet to be conducted. There is also a dearth of qualitative studies on the perception of elderly persons in Asia and outside of Asia region on the perioperative experience undergoing joint replacement surgery. Given the paucity of studies, there is a need to explore the perception of elderly persons undergoing joint replacement surgery. The findings of this study will provide valuable information for the healthcare professionals, in particular nurses, enabling them to target interventions to address the elderly Singaporeans' cultural and personal beliefs, as well as mental and social adjustments in coping with joint replacement surgery. Such insights will help healthcare administrators and healthcare professionals to review current healthcare policy, nursing policy, nursing practice, nursing education, patient education, community resources and continuity of care to improve the perioperative journey of these persons. With the increasing trend towards total joint replacement surgery, it is imperative for nurses to have a qualitative understanding of the emic dimensions of care continuity and patient-centred care. This study contributes to the current body of nursing knowledge that focuses on perioperative care in order to facilitate the transitional status of the elderly patients undergoing joint replacement surgery. Elderly Singaporean's perspectives and insights are key considerations in designing programs to improve quality care, guide and advance current healthcare policy, care practice and education on perioperative concerns. With such insights, nurses can develop relevant strategies to facilitate the

perioperative continuum of care and provide strong emphasis on the essence of caring, which is both culture- and patient-centric.

1.6 Organisation of the Thesis

This chapter introduces the research topic by describing the challenges of an ageing population in Singapore. It addresses the increasing trend of THR and TKR cases in Singapore with the concurrent increased incidence of hip and knee osteoarthritis associated with ageing. This chapter further addresses the socio-demographics of the elderly population in Singapore, including ethnic composition, gender, income, housing, type of living arrangements, and educational and language profiles. An overview of the healthcare system in Singapore is also presented. Finally, this chapter presents the aim of study, the research questions and the significance of the study.

Chapter 2 reviews the literature regarding the perioperative experiences of elderly participants undergoing THR and TKR surgery. The studies are synthesised and summarised according to factors relating to perioperative experiences in order to provide an integrative literature review. The literature and the associated methodology are then critiqued to inform the aim and research questions of the study.

Chapter 3 examines the development of the CCM (Wagner, 1998) and SCT (Bandura, 1997) as the theoretical framework that underpins this study. The last section reviews the application of both the theoretical framework and the rationale of adoption as the adapted model for this study.

Chapter 4 addresses the method and design of the current research study and the justification for a qualitative descriptive methodology. The chapter outlines the sampling approach, develops the interview guides of two repeated interviews and discusses the ethical considerations. The data collection approach and pilot study with the associated evaluation are further outlined, followed by a detailed explanation of the changes to the subsequent interview

guides. The chapter further explains the data management, thematic analysis, data saturation and the process of rigor undertaken for the current study.

Chapter 5 commences with an overview of the findings of the three critical phases of the perioperative journey, which constitute the overarching theme of 'journey to regain life'. The first section outlines the demographics of the elderly participants recruited for the study and presents the emerging eight themes and 21 subthemes for the three critical phases of 'beginning of pain' (preoperative), 'finding solution' (intraoperative) and 'recovering' (postoperative). The next section critically discusses the five themes and 14 subthemes that emerged during the critical phases of 'beginning of pain' (preoperative) and 'finding solution' (intraoperative). It provides a critical discussion in light of the contemporary literature.

Chapter 6 discusses the last critical perioperative phase of 'recovering' (postoperative) in order to construct the overarching theme of 'journey to regain life' in light of the contemporary literature. The chapter then applies the findings to the adapted model of CCM (Wagner, 1998) and SCT (Bandura, 1997). Finally, the limitation of this study is discussed.

Chapter 7 concludes the study by presenting an overview of the key findings in the three critical phases, as well as the application of the adapted model. The strengths of this study are further discussed. Finally, the key implications and recommendations for health policy, nursing policy, education and practice, patient education, and community resources in Singapore are outlined. The chapter concludes with recommendations for future research based on the empirical data in this study.

Chapter 2: Integrative Literature Review

2.1 Introduction

This chapter reviews the literature from major online databases related to elderly patients' perioperative experiences of joint replacement surgery. The quality and rigor of the literature are synthesised using the quantitative and qualitative critical appraisal checklist from the Joanna Briggs Institute (2011). Lastly, this chapter addresses the gaps in the literature.

As joint replacement surgery has become an accepted management and treatment strategy for osteoarthritis, it is imperative for nurses to gain better understanding of the elderly persons' perceptions relating to joint replacement surgery in order to improve nursing practice. Enhancing knowledge of elderly persons' perceptions will promote patient-centred nursing practice, inform improvements in nursing and patient education, assist in the formulation of effective nursing policy, improve care integration and care continuity of joint replacement surgery. A preliminary search of the literature found 214 studies that focused on the Health-Related Quality of Life (HRQOL)/Quality of Life (QOL) and perioperative experience; however, to date, there had been no synthesis of these studies. Therefore, an integrative literature review was required of perceptions relating to the perioperative experiences of elderly patients undergoing joint replacement surgery (Tay Swee Cheng, Klainin-Yobas, Hegney & Mackey, 2014).

The question underpinning this review was: What are the perceptions relating to the perioperative experiences of elderly persons undergoing joint replacement surgery?

The next section identifies relevant literature based on the inclusion and exclusion criteria using a search strategy.

2.2 Search Strategy

Studies were identified through an electronic search of literature from 2001 to 2014 in the CINAHL, PubMed, Scopus and Web of Science databases. The search terms included: ‘preoperative experience’, ‘intraoperative experience’, ‘postoperative experience’ and ‘perioperative experience’, ‘Health Related Quality of Life’ (HRQOL) and ‘Quality of Life’ (QOL). An additional search combined the initial search terms using specific terms related to joint replacement surgery—‘total knee replacement’, ‘total hip replacement’ and ‘total joint replacement’—to narrow down the search. Inclusion criteria were applied as follows:

1. elderly adults aged 60 years or above
2. focus on patients’ experiences and their perceptions influencing their perioperative experiences of TKR and THR due to osteoarthritis
3. included QOL and HRQOL as study variables: QOL is broadly defined as ‘individuals’ perception of their position in life in culture and value systems in which they live and in relation to their goals, expectations, standards and concerns’ (WHO, 1997, p. 1); HRQOL encompasses aspects of quality of life that affect physical and mental health (Centers for Disease Control and Prevention, 2000) (QOL and HRQOL were used interchangeably in the articles)
4. used quantitative and/or qualitative research designs
5. were published in English.

The review excluded studies that were not:

1. primary research
2. peer-reviewed
3. identified as having ethical approval.

The database search identified 214 studies. After examining the abstracts using the inclusion and exclusion criteria, and then removing the duplicates, 135 studies were retrieved for review by three of the reviewers who were involved in this integrative literature review. Additionally, the reference lists

of these 135 studies were checked to ascertain if any other papers could be included in the review. Two more studies that focus on THR and TKR on the elderly were found to be relevant and included in the review. 97 studies were excluded as these studies focused on the review and commentary (20), revision of THR/TKR (42) and complications of arthroplasty (35). A total of 40 papers were further reviewed by two reviewers who were methodological experts. Eighteen papers were excluded from the review because they focused on surgery for trauma-related hip and knee surgery or rheumatoid arthritis, or the age of the patients was less than 60 years. Twenty-two papers were included in the review, of which 13 were quantitative and nine were qualitative studies (see Figure 2.1). The studies originated from Sweden (7), United Kingdom (4), Finland (4), United States (2), Australia (1), New Zealand (1), Canada (1), Japan (1) and France (1) (see Appendix 2.1).

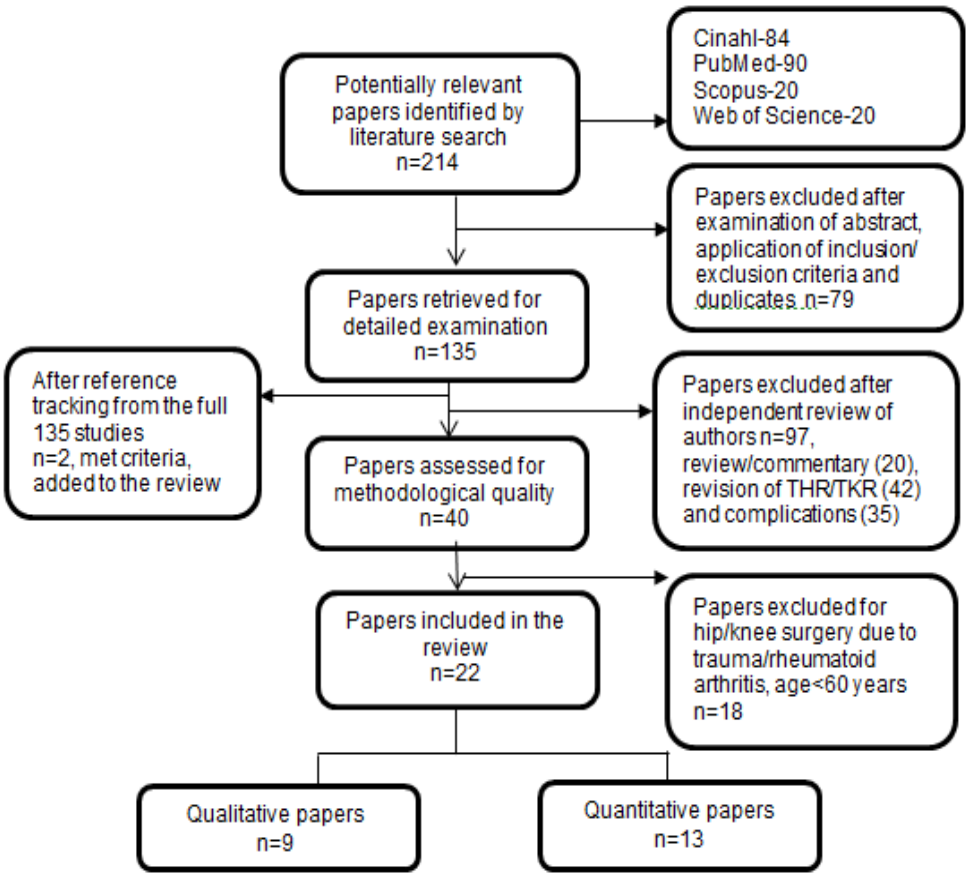

Figure 2.1: Database search for relevant articles

The next section presents a critical appraisal of the identified literature using the Joanna Briggs Institute (2011) to assess the quality of the articles.

2.3 Quality Appraisal and Data Extraction

Following the identification of potentially relevant literature, the Joanna Briggs Institute's critical appraisal checklists for Cohort/Case Control/Observational Studies under Meta Analysis of Statistics Assessment and Review Instrument (MASTARI) was used for quantitative studies, and the Qualitative Assessment and Review Instrument (QARI) was used for qualitative studies to ensure methodological validity prior to inclusion in the review (Joanna Briggs Institute, 2011) (see Appendix 2.2 and 2.3).

The descriptive studies were evaluated based on research methodology such as sampling, design, measurement tool and appropriateness of statistical analysis. The qualitative studies were evaluated for congruency between the paradigm, methodology and method, the influence of the researcher on the research, data collection and data analysis (see Appendix 2.2). If the studies had not been approved by an Ethics Committee, they were not included in the review. Following agreement on the included studies, the QARI critical appraisal tool was then used, which included the extraction of the qualitative findings. The Joanna Briggs Institute (2011) defined a finding as 'a conclusion reached by the researcher(s) and often presented as themes or metaphors' (p. 30). Findings were extracted from each paper and were ranked as 'unsupported' (when the data did not support the finding), 'credible' (logically inferred but findings could be challenged) or 'unequivocal' (findings that were directly reported/observed and not open to challenge) (Joanna Briggs Institute, 2011). These findings were then pooled into categories (or themes).

The quantitative data were appraised using the MASTARI critical appraisal tool to rate the quality and level of evidence based on the Joanna Briggs Institute's (2011) assessment tool. The data could not be pooled; therefore,

they were subjected to a narrative analysis of each individual paper (see Appendix 2.3). Themes were then developed after the analysis.

The next section discusses the thematic analysis of the 22 quantitative and qualitative articles relating to the perceptions of perioperative experiences of elderly patients undergoing joint replacement surgery (see Appendix 2.4).

2.4 Thematic Analysis of Review

The research designs of the 13 quantitative studies, which included six longitudinal, three cohort, two cross-sectional, one descriptive and one retrospective study, focused on the perception of the perioperative experiences of elderly patients undergoing joint replacement surgery. The methodological approach of the nine qualitative studies included five hermeneutic or interpretive phenomenology, one descriptive phenomenology, one grounded theory and two studies with no specified methodology but working within a qualitative data collection framework.

The thematic analysis of the qualitative and quantitative data from the studies found that perceptions relating to the perioperative experiences of elderly patients undergoing joint replacement surgery related to osteoarthritis can be categorised into eight themes: waiting time, pain and disability, mental health, race/ethnicity and gender, body image, coping and social support, patient education, and care continuity (see Appendix 2.1).

2.4.1 Waiting time

Six quantitative studies (Ackerman, Bennell & Osborne, 2011; Bachrach-Lindstrom, Karlsson, Pettersson & Johansson, 2008; Brownlow, Benjamin, Andrew & Kay, 2001; Desmeules, Dionne, Belzile, Bourbonnais & Fremont, 2010; McHugh, Luker, Campbell, Kay & Silman, 2008; Montin, Suominen, Katajisto, Lepisto & Leino-Kilpi, 2009) and three qualitative studies (Marcinkowski, Wong & Dignam, 2005; Mauleon, Palo-Bengtsson & Ekman,

2007; Sjoling, Agren, Olofsson, Hellzen & Asplund, 2005) investigated the effects of preoperative waiting times on the perioperative experiences of elderly patients undergoing joint replacement surgery. These elderly patients experienced varying preoperative waiting times. A prolonged preoperative waiting time ranging from six months to two years was significantly correlated to the experience of pain, joint stiffness, physical functioning and HRQOL of patients awaiting joint replacement surgery. The longer the waiting time, the worse the deterioration (Ackerman et al., 2011; Bachrach-Lindstrom et al., 2008; Brownlow et al., 2001; Desmeules et al., 2010; McHugh et al., 2008; Montin et al., 2009). Prolonged waiting times for both THR and TKR was detrimental to patients' HRQOL, leading to reduced functional condition, pain, increased need for support from relatives, worsening mental health, and limited independence in daily life, which affected their confidence in managing their physical health (Ackerman et al., 2011; Bachrach-Lindstrom et al., 2008; Marcinkowski et al., 2005; Sjoling et al., 2005).

Elderly THR patients with worse HRQOL were found to have higher utilisation of home nursing services throughout their recovery period (Montin et al., 2009). This included the continued use of physiotherapy at two months, home help services at three and six months, and transportation to healthcare services at one, three and six months postoperatively. Patients with shorter waiting times used fewer home help services and less physiotherapy at one month postoperatively (Montin et al., 2009). In an interpretive phenomenological study (Sjoling et al., 2005) conducted in Sweden, the theme 'A life on hold—a continuous struggle against a faceless system' was reported. This theme aptly described patients' feelings of loss of dignity, uncertainty, powerlessness, depression and frustration during the indefinite wait for surgery (Sjoling et al., 2005). Therefore, waiting time has a significant effect on elderly patients' perceptions of perioperative experiences.

2.4.2 Pain and disability

Seven quantitative studies (Ackerman et al., 2011; Desmeules et al., 2010; McHugh et al., 2008; Montin, Suominen, Haaranen, Katajisto, Lepisto & Leino-Kilpi, 2011; Montin et al., 2009; Rat et al., 2010; Stomberg & Oman, 2006) and six qualitative studies (Fujita et al., 2006; Marcinkowski et al., 2005; Mauleon et al., 2007; McHugh & Luker, 2012; Parsons, Godfrey & Jester, 2009; Sjoling et al., 2005) investigated the effects of pain and disability on the perioperative experiences of elderly patients undergoing joint replacement surgery. These patients experienced debilitating pain and disability from the onset of severe osteoarthritis into the preoperative period. This experience restricted their life activities and level of independence (Ackerman et al., 2011; Fujita et al., 2006; Parsons et al., 2009; Sjoling et al., 2005), and it caused significant deterioration in the contralateral knee (Desmeules et al., 2010).

During the preoperative period, elderly patients sought pain relief while waiting for joint replacement surgery. In a grounded theory study (Marcinkowski et al., 2005), the theme of endurance, with subthemes ‘hurting’ and ‘struggling’ emerged during the preoperative waiting period. In a study conducted in Japan (Fujita et al., 2006), Japanese elderly patients coped with preoperative pain by exploring alternative therapies (cold compress, acupuncture, moxibustion and hot spring) to relieve the unbearable pain. However, these therapies did not provide any relief (Fujita et al., 2006). Participants in both studies reported that pain from severe osteoarthritis disrupted their activities during the day and their sleep at night (Fujita et al., 2006; Parsons et al., 2009). In some patients, the pain and disability led to a loss of independence, employment and early retirement while waiting for joint replacement surgery (Parsons et al., 2009).

During the intraoperative period, some patients could sense the pain during the hip surgery, which compromised their well-being and comfort during the local anaesthesia. However, they believed that being cured came with the price of

an inevitable pain experience during anaesthesia and surgery (Mauleon et al., 2007).

During the postoperative period until six weeks, patients experienced improved pain levels and mobility, which gave them greater freedom in life (Fujita et al., 2006), and most were pain-free at six months postoperatively (Montin et al., 2011; Montin et al., 2009). Some patients who expected to be pain-free and regain their normality in a shorter period reported that the continuing presence of pain resulted in a longer recovery time than expected. The false optimism of achieving a quick recovery and a return to normality, work and life pursuits affected their process of recovery (McHugh & Luker, 2012).

Therefore, it is important to understand the effects of pain and disability on elderly patients during the perioperative period. Living and coping with pain and disability became a part of their lives after the onset of osteoarthritis. Postoperatively, patients had significant improvements in pain, physical functioning (deformity, range of motion and gait), and physical and emotional QOL scores from six months to one year when compared to the general population of comparable age who did not require similar surgery. Patients who reported higher postoperative pain also reported significantly higher preoperative pain. The highest level of pain occurred during the first and second postoperative days (Stomberg & Oman, 2006). It is important to manage elderly patients' levels of expectations regarding the level of improvement of pain and disability during the postoperative period (McHugh & Luker, 2012) as they undergo gradual adjustments to the physical body postoperatively during rehabilitation to regain a normal functioning body.

2.4.3 Mental health

Five quantitative studies (Ackerman et al., 2011; Brownlow et al., 2001; McHugh et al., 2008; Montin et al., 2007; Rat et al., 2010) and four qualitative studies (Fujita et al., 2006; Gustafsson, Ponzer, Heikkila & Ekman, 2007;

Mauleon et al., 2007; Parsons et al., 2009) investigated the effects of mental health status on the perioperative experiences of elderly patients undergoing joint replacement surgery. Patients were found to experience changes in the status of their mental health during their perioperative continuum. It was reported that 25 per cent of patients experienced psychological distress while waiting for joint replacement surgery during preadmission, as measured by the Kessler Psychological Distress Scale (Ackerman, et al., 2011).

Regarding the relationship of preoperative waiting time to mental health, it was found that 25 per cent of THR patients experienced clinically significant mood disorders during the waiting period (Brownlow et al., 2001). However, a significant association between waiting time and mental health was not observed (Brownlow et al., 2001). Only four out of 95 participants waited for surgery for more than 18 months (Brownlow et al., 2001). There was no evidence of cases with rescheduled surgery to reduce waiting time.

A significant negative correlation was found between the preoperative state of anxiety and the preoperative psychosocial dimension of HRQOL (Montin et al., 2007). Preoperatively, patients were overwhelmed with an inferiority complex related to their disability (Fujita et al., 2006), and they had a fear of bodily harm and death resulting from unsuccessful surgery (Gustafsson et al., 2007). Postoperatively, patients encountered distress regarding their body image and living with prosthesis, as well as anxiety regarding the lifespan of implant and the risk of implant dislocation during their rehabilitation period (Fujita et al., 2006). There were mixed findings on the relationship of waiting time to the anxiety level and mental health status of elderly patients. Patients were concerned with their body image and living with prosthesis after joint replacement surgery.

2.4.4 Race/ethnicity, age and gender

Six quantitative studies (Bachrach-Lindstrom et al., 2008; Groeneveld et al., 2008; Lavernia, Alcerro, Contreras & Rossi, 2011; Montin et al., 2011;

Montin et al., 2009; Stomberg & Oman, 2006) investigated the effects of race/ethnicity, age and gender on the perioperative experiences of elderly patients undergoing joint replacement surgery.

In a cross-sectional study of chronic hip and knee osteoarthritis and potential candidates for joint replacement surgery, African–Americans were found to have significantly higher pain scores, greater functional impairment in osteoarthritis and lower expectations of surgical outcomes than Anglo–Americans (Groeneveld et al., 2008). In a retrospective cohort study, African–Americans were found to have worse scores in perceived well-being and functionality than Anglo–Americans preoperatively; however, both groups encountered substantial improvements postoperatively (Lavernia et al., 2011).

Elderly patients who were assessed with worse physical and total HRQOL preoperatively than younger patients experienced more preoperative pain (Montin et al., 2011; Montin et al., 2009). In similar studies (Montin et al., 2011; Montin et al., 2009), postoperative pain was found to be unrelated to age at three and six months. There were conflicting findings in a study by Stomberg and Oman (2006), where elderly patients reported less postoperative pain than younger patients. This difference was attributed to the inability of elderly patients to understand the Visual Analogue Scale (VAS). Younger patients who anticipated returning to work had higher expectations of joint replacement surgery (Gustafsson, Heikkila, Ekman & Ponzer, 2010b).

Female patients experienced more perioperative pain and discomfort (Lavernia et al., 2011; Stomberg & Oman, 2006), fewer self-care problems from the time they were on the waiting list to one week prior to surgery, and more pain, discomfort, anxiety and depression at the one-year follow-up compared to male patients (Bachrach-Lindstrom et al., 2008). Females also used more non-healthcare services, such as home help services from one to three months, transportation to healthcare services at one month and home nursing services at two months, compared to male patients (Montin et al., 2009). Therefore,

race/ethnicity, age and gender have a significant effect on elderly patients' perceptions of perioperative experiences.

2.4.5 Body image

Three qualitative studies (Fujita et al., 2006; Gustafsson et al., 2007; Parsons et al., 2009) investigated body image and the perioperative experiences of elderly patients undergoing joint replacement surgery. During the preoperative period, body image or constant thoughts of a disabled body was a central concern for both THR and TKR patients, as they placed high importance on how others perceived them (Gustafsson et al., 2007; Parsons et al., 2009). They were distressed with their immobility, 'limping' appearance and the need to use a walking stick as an assistive device (Gustafsson et al., 2007; Parsons et al., 2009). As the patients became connected to their deteriorating and disabled body, they continued to anticipate an abled and functioning body after surgery (Gustafsson et al., 2007; Parsons et al., 2009).

In regards to body image, a similar study conducted in Japan by Fujita et al. (2006) found that patients experienced an 'inferiority complex', as they were concerned about how others perceived their functioning disability, and they preferred to isolate themselves at home. Several studies (Fujita et al., 2006; Gustafsson et al., 2007; Parsons et al., 2009) noted that patients experienced a transition from a disabled body during the preoperative period to one of being-in-charge during the postoperative period. During the postoperative period, patients experienced readjustment through the discovery of the possibilities and limitations of their unfamiliar bodies (Gustafsson et al., 2007).

2.4.6 Coping and social support

Four quantitative studies (Bachrach-Lindstrom et al., 2008; Desmeules et al., 2010; Montin et al., 2009; Rat et al., 2010) and eight qualitative studies (Fujita et al., 2006; Gustafsson, Ekman, Ponzer & Heikkila, 2010a; Gustafsson et al., 2010b; Gustafsson et al., 2007; Marcinkowski et al., 2005; McHugh & Luker,

2012; Parsons et al., 2009; Sjoling et al., 2005) investigated coping as part of the perioperative experience of elderly patients undergoing joint replacement surgery. Coping refers to ‘efforts to master conditions of harm, threat or challenge when a routine or automatic response is not readily available. New behavioural solutions or old ones must be adapted to meet current stress’ (Monat & Lazarus, 1985, p. 5). Elderly patients awaiting hip joint replacement surgery felt the loss of independence during the preoperative waiting period, as they became reliant on their spouses or family members to manage their hygiene care and activities of daily living because of the debilitating pain and disability from severe osteoarthritis (Fujita et al., 2006; Parsons et al., 2009). The need for family support increased from 31 per cent to 58 per cent during the preoperative period (Bachrach-Lindstrom et al., 2008). Strong and invaluable support from spouses, family members, friends and carers during this period gave patients a greater sense of security in coping and moving outdoors with less fear of falling (Parsons et al., 2009), as well as a sense of continuity and meaning in life (Sjoling et al., 2005).

During the postoperative period, patients experienced frustration and demoralisation, as they believed that their continued dependence on family support placed a heavy burden on their loved ones and carers (Parsons et al., 2009). Patients felt frustrated and disabled when pain and some level of dependence persisted during the postoperative period, as they continued to rely on walking aids and other supportive equipment during the rehabilitation phase (McHugh & Luker, 2012). However, family support decreased from 58 per cent to 11 per cent in the 12-month postoperative period (Bachrach-Lindstrom et al., 2008), which indicated progressive independence. A major motivation to this challenging transition for patients was the hope and faith that their lives would get back to normal and they would regain independence (Gustafsson et al., 2010a; Gustafsson et al., 2007; Marcinkowski et al., 2005) to cope with life activities and engage in previously curtailed activities (Fujita et al., 2006; Gustafsson et al., 2007; Marcinkowski et al., 2005).

2.4.7 Patient education

Two quantitative studies (Montin, Johansson, Kettunen, Katajisto & Leino-Kilpi, 2010; Stomberg & Oman, 2006) and two qualitative studies (McHugh & Luker, 2012; Parsons et al., 2009) investigated knowledge of care and the perioperative experiences of elderly patients undergoing joint replacement surgery. Patients' positive evaluations of hospitalisation were related to their perceptions of the adequacy of the information they were given about their care and surgery (Montin et al., 2010). In a study by Montin et al. (2010), which examined the effectiveness of nurse-led preoperative pain management clinics, the information on surgical preparation and rehabilitation aids provided by nurses during the preadmission assessment was seen to positively influence postoperative outcomes. Similarly, a study by Stomberg and Oman (2006), which examined preoperative information given by registered nurses versus anaesthetists, found that patients preferred the information given by the nurses, as it was more comprehensive and better met their needs.

The timing of patient education was pertinent to the comprehension and retention of information. In a study by Stomberg and Oman (2006), elderly patients had significant difficulty understanding VAS when postoperative pain management (POPM) teaching was conducted just prior to admission for surgery.

Patients also gained more confidence when they received information on their progress from the primary doctors and guidance from health professionals during the process of recovery. In addition to information from health professionals, patients actively sought knowledge and information on the Internet by looking for success stories of former THR patients to assist with their recovery process (McHugh, Campbell & Luker, 2012). Upon discharge, they also phoned health professionals to obtain advice on possible activities during the recovery period (McHugh et al., 2012). The different sources of information and knowledge of care affected patients' perceptions of their perioperative experiences.

The lack of patient education on the management of osteoarthritic symptoms, surgical expectations and uncertainty of the period of recovery during the preoperative waiting period led to patients having insufficient knowledge during their surgical encounter and recovery period (McHugh et al., 2012; Parsons et al., 2009). It also led to increased anxiety and frustration about their postoperative outcomes (McHugh et al., 2012; Parsons et al., 2009). Therefore, it is apparent that the various sources of information and knowledge of care, timing of education, patients' age and level of anxiety affect patients' learning and subsequent retention of information.

2.4.8 Care continuity

Care continuity refers to the continuum of care from different healthcare professionals during the patients' hospitalisation. Five qualitative studies (Gustafsson et al., 2010b; Mauleon et al., 2007; McHugh et al., 2012; McHugh & Luker, 2012; Sjoling et al., 2005) investigated the care continuity of elderly patients undergoing joint replacement surgery. The studies found that care continuity enhanced effective relationships between health professionals and their patients during the perioperative continuum because patients shared their perioperative journey with their healthcare providers, who they depended on to deliver safe and effective care (Gustafsson et al., 2010b; Mauleon et al., 2007; Sjoling et al., 2005). Support from healthcare professionals gave much-needed reassurance and confidence to patients during the perioperative period (McHugh & Luker, 2012). Patients who were actively involved in their care continuity were more likely to exhibit a sense of involvement, well-being and courage towards independence (Gustafsson et al., 2010b; Mauleon et al., 2007; Sjoling et al., 2005), and therefore to have positive perceptions of their perioperative experiences.

The next section reviews the 22 articles and eight major themes relating to the perceptions of perioperative experiences of elderly patients undergoing joint replacement surgery.

2.5 Discussion

Twenty-two studies (13 quantitative and nine qualitative) were reviewed, and eight major themes were identified that affect the perceptions of perioperative experiences of elderly patients undergoing joint replacement surgery.

The integrative literature review of these studies found that prolonged preoperative waiting times of six months to two years caused a significant decline in HRQOL/QOL, physical functioning and functionality of the contralateral knee, thereby affecting the perceptions of perioperative experiences of patients undergoing joint replacement surgery (Ackerman et al., 2011; Bachrach-Lindstrom et al., 2008; Brownlow et al., 2001; Desmeules et al., 2010; Marcinkowski et al., 2005; McHugh et al., 2008; Rat et al., 2010; Sjoling et al., 2005). The findings of this review were consistent with studies that found that waiting for THR may result in a loss of quality-adjusted life years (Jones, Voaklander, Johnston & Suarez-Almazor, 2001; Ostendorf et al., 2004). In contrast, one finding indicated that waiting time was unrelated to pain and physical functioning at six months postoperatively (Jones et al., 2001). However, even in this study, a shorter preoperative waiting time was recommended (no more than six months), as a shorter waiting time was associated with increased HRQOL and physical functioning (Mahon et al., 2002), and less reliance on home help and physiotherapy (Montin et al., 2009). Therefore, it is important that healthcare services focus on reducing the waiting time for joint replacement surgery.

Pain and disability have a major effect on the perceptions of perioperative experiences of elderly patients undergoing joint replacement surgery. These findings were consistent with some studies (Demierre, Castelao & Piot-Ziegler, 2011; Nasr, Enderby & Parry, 2012) that found that patients' perioperative experiences were related to preoperative pain status, physical functioning and disability. The worse the patients' preoperative function, the more likely they were to experience pain and require assistance, particularly with walking at one year postoperatively, compared with patients with a better

baseline status. Therefore, there is a need for healthcare institutions to evaluate preoperative waiting times and the preoperative status of pain, physical functioning and disability because of their effects on the postoperative outcomes and HRQOL of elderly patients undergoing joint replacement surgery.

The review found that elderly patients' perceptions and expectations of pain and their process of recovery were closely linked to their education, level of information and knowledge of care taught by health professionals, and self-gathered information from the Internet and other resources. High levels of knowledge and realistic expectations have been associated with a shorter recovery period (Judge et al., 2011).

In particular, the review highlighted the emphasis on the management of patients' false optimism during the perioperative period, as the clarification of patients' self-perceptions and expectations significantly affects their process of recovery (McHugh & Luker, 2012). A self-management model with active collaboration between healthcare professionals and patients can improve patients' positive perceptions of their perioperative experiences (McHugh & Luker, 2012) and lead to informed patient clinical decision-making (Judge et al., 2011). Therefore, healthcare professionals need to conduct patient-centric clinical assessments to assess patients' level of understanding and expectations related to their preoperative and postoperative experiences (Brownlow et al., 2001).

In this review, elderly patients undergoing joint replacement surgery who experienced a loss of independence and increased pain and disability from severe osteoarthritis used different coping mechanisms along the perioperative continuum as they persevered to regain their normal lives. The coping mechanisms in this review were consistent with the themes of problem-focused, emotion-focused and self-oriented coping, which were highlighted in a qualitative study of patients undergoing THR (Nasr et al., 2012). In problem-focused coping, patients relied on mobility aids to enable some measure of

independence, as they were aware of their limiting hip condition. In emotion-focused coping, patients reframed their expectations and meanings in life to cope with their functional limitation. Lastly, in self-oriented coping, patients sought alternative interventions, such as physiotherapy and swimming, to deal with their pain and functional limitation prior to agreeing to joint replacement surgery (Nasr et al., 2012).

During the rehabilitation phase, patients strived to re-establish roles and relationships by seeking to relinquish dependence on the social support of family members and health professionals. Patients with a positive outlook and good social support were better able to adapt towards recovery (Grant, St John & Patterson, 2009).

The review found that race/ethnicity, age and gender have a significant effect on elderly patients' perceptions of their perioperative experiences. In particular, African–Americans were found to have significantly higher pain scores, functional impairment and lower expectations of surgical outcomes and psychological well-being compared to Anglo–Americans undergoing joint replacement surgery (Groeneveld et al., 2008; Lavernia et al., 2011). These findings were consistent with a study by Kamath, Horneff, Gaffney, Israelite, and Nelson (2010), which found that African–Americans who underwent TKR surgery had longer delays to presentation and therefore experienced worse physical functioning postoperatively compared to Caucasians, Asians and Hispanics. Gender also appears to influence the rehabilitation process; females were reported to experience worse pain and functioning at the time of arthroplasty (Borrero, Kwoh, Sartorius & Ibrahim, 2006), and worse pain and functioning postoperatively, compared to males (Borrero et al., 2006; Kamath et al., 2010).

A dearth of studies focused on race and ethnicity in an Asian setting. However, a Japanese study by Fujita et al. (2006) examined the effect of culture on Japanese women undergoing THR surgery. The study found that women were concerned with their body image because of their pain and

disability during the preoperative period. Japanese patients used traditional medicine, such as acupuncture and moxibustion, but they were found to be ineffective in reducing pain and disability in the long term (Fujita et al., 2006). The different experiences related to race and ethnicity highlighted the importance of exploring different approaches to pain management during the pre- and postoperative stages, particularly during the rehabilitation period. Finally, age was an important consideration in relation to patients' perioperative experiences (Lavernia et al., 2011). While elderly patients who experienced more preoperative pain were assessed to have worse physical and total HRQOL than younger patients preoperatively, postoperative pain was found to be unrelated at three and six months (Montin et al., 2011; Montin et al., 2009).

Care continuity demonstrated the importance of building a trusting relationship between patients and health professionals. Patients who were actively involved in their care continuity along with health professionals during the perioperative period exhibited a greater perception of well-being, independence and care ownership. The self-management model of care strengthened nurse–patient relationships and instilled comfort, faith, a sense of control and confidence in patients undergoing surgery (McHugh & Luker, 2012), which led to positive effects on the healing process for patients during the rehabilitation phase (Rudolfsson, Hallberg, Ringsberg & von Post, 2003; Rudolfsson, Ringsberg & von Post, 2003).

Montin, Suominen and Leino-Kilpi (2002) categorised the experiences of patients undergoing THR into physical, psychological and social aspects. However, this review added two relevant themes—patient education and care continuity—which affect the perceptions of perioperative experiences of elderly patients undergoing joint replacement surgery.

The next section identifies the gaps in this integrative literature review, which then serve as the focus of this qualitative descriptive study.

2.6 Gaps in the Integrative Literature Review

The preceding integrative literature review discussed peer-reviewed articles relating to the perceptions of perioperative experiences of elderly patients undergoing joint replacement surgery. The majority of the reviewed studies were of a non-Asian context with only one study conducted in Japan (Fujita et al., 2006) which examined elderly patients' experiences undergoing THR surgery. Therefore, the review has highlighted the need for further research to gain a deeper understanding of, and insight into, the perceptions of elderly patients undergoing joint replacement surgery in a Singaporean context that accommodates diverse racial ethnicity, cultural and social perspective. This gap in the knowledge serves as the basis for a descriptive qualitative methodology selected to explore the perceptions of elderly Singaporeans undergoing joint replacement surgery.

2.7 Summary

This chapter presented an integrative literature review based on the evidence of elderly patients' perceptions of perioperative experiences undergoing THR and TKR surgery resulting from osteoarthritis using the Joanna Briggs Institute's (2011) critical appraisal checklist. The chapter discussed the gaps in the integrative literature review and informed the rationale for this research study.

Chapter 3: Theoretical Framework

3.1 Introduction

This chapter examines the theoretical frameworks that have informed the conduct of this study on elderly Singaporeans' perceptions of undergoing joint replacement surgery. The theoretical frameworks were based on the Chronic Care Model (CCM) (Wagner, 1998) and Social Cognitive Theory (SCT), also known as self-efficacy (Bandura, 1997). This chapter consists of two main sections. The first section provides an overview of the development of the CCM and its elements, the application of the model, the rationale for adopting the model for this study, and a brief review of the model. The second section provides an overview of the development of SCT and its factors, the application of the model, the rationale for adopting the model for this study, and a brief review of the model. Two other theoretical models that were explored for applicability to this study are also presented.

The theoretical framework for this study is based on both the CCM, which was developed by Wagner (1998), and SCT, which was developed by Bandura (1997). Chronic diseases are characterised by long latency periods, a prolonged course of illness, functional impairment or disability, complex causality, and multiple risk factors (Australian Institute of Health and Welfare, AIHW, 2013). Osteoporosis is the most common condition of chronic illness that affects joints and produces physical disability among elderly people as they undergo a period of psychosocial adjustment during the perioperative period of joint replacement surgery.

3.2 Chronic Care Model

The CCM has been widely used to guide clinical quality initiatives to improve chronic illness care in North America and around the world. Clinical settings that have implemented CCM in the redesign of chronic care illness have been

shown to improve patient care and provide better health outcomes (Coleman, Austin, Brach & Wagner, 2009). The CCM represented a paradigm shift from a reactive, acute illness system to a model of interaction of better informed and proactive patients with the expert healthcare system (Group Health Research Institute, 2006–2013).

3.2.1 Development of the Chronic Care Model

The CCM was developed in the mid 1990s in the United States by the MacColl Centre for Healthcare Innovation, Group Health Research Institute. In 1997, it was further adapted by a panel of national experts that was funded by the Robert Wood Johnson Foundation (RWJF) (Group Health Research Institute, 2006–2013). The four elements of the CCM model are self-management support, decision support, delivery system design and information systems. The CCM was utilised for data collection and analysis of innovative programs in the areas of chronic care as recommended by the panel of experts. In 1998, the RWJF further funded the MacColl Centre for Healthcare Innovation in the evaluation of the application of CCM across a variety of healthcare settings nationally (Group Health Research Institute, 2006–2013). The CCM focuses on the social determinants of health in motivating the individual and influencing community and population health (New Zealand Guidelines Group, 2011).

3.2.2 Refinements of the Chronic Care Model

In 2003, a core expert group and representatives from Improving Chronic Illness Care (ICIC) refined and improved the CCM to meet the changing landscape of chronic care after reviewing the literature and implementation of the CCM in various healthcare systems (Group Health Research Institute, 2006–2013). Five additional components were included in the improved version of CCM: 1) Patient Safety (in Health System); 2) Cultural Competency (in Delivery System Design); 3) Care Coordination (in Health System and Clinical Information Systems); 4) Community Policies (in

Community Resources and Policies); and 5) Case Management (in Delivery System Design) (Group Health Research Institute, 2006–2013).

3.2.3 Elements of the Chronic Care Model

The six elements of the revised CCM model are: health system, delivery system design, decision support, clinical information systems, self-management support, and community resources and policies (see Figure 3.1). The interaction and combination of all elements promote a synergy between active and well-informed patients who take personal responsibility and ownership of their health and providers who have resources and expert knowledge (Barr et al., 2003; Group Health Research Institute, 2006–2013; Wagner, Davis, Schaefer, Von Korff & Austin, 1999).

a) Health system

The focus of the health system is to 'create a culture, organisation and mechanisms of safe, high quality care' (Group Health Research Institute, 2006–2013). The health system needs to lend support in order to improve all levels of organisation, starting from senior management, to promote effective improvement strategies targeted at comprehensive system change. In addition, the health system also needs to provide incentives based on outcomes of quality care other than facilitating chronic illness care coordination within and across organisations (Barr et al., 2003; Group Health Research Institute, 2006–2013; Wagner et al., 1999).

A healthcare system that strives to improve chronic illness care needs to be prepared for dynamic changes throughout the organisation. Senior management should focus on the improvement of care as a high priority, set clear objectives and protocols in embracing effective improvement strategies, use incentives, and process change (Barr et al., 2003; Group Health Research Institute, 2006–2013; Wagner et al., 1999).

b) Delivery system design

The element of care delivery ensures the delivery of effective, efficient clinical care and support for self-management. In the delivery of care, team members must have clearly defined roles and distributed tasks. The decision support adopted recommended interactions in providing evidence-based care and support to people with chronic illnesses in a culturally sensitive manner (Barr et al., 2003; Group Health Research Institute, 2006–2013; Wagner et al., 1999).

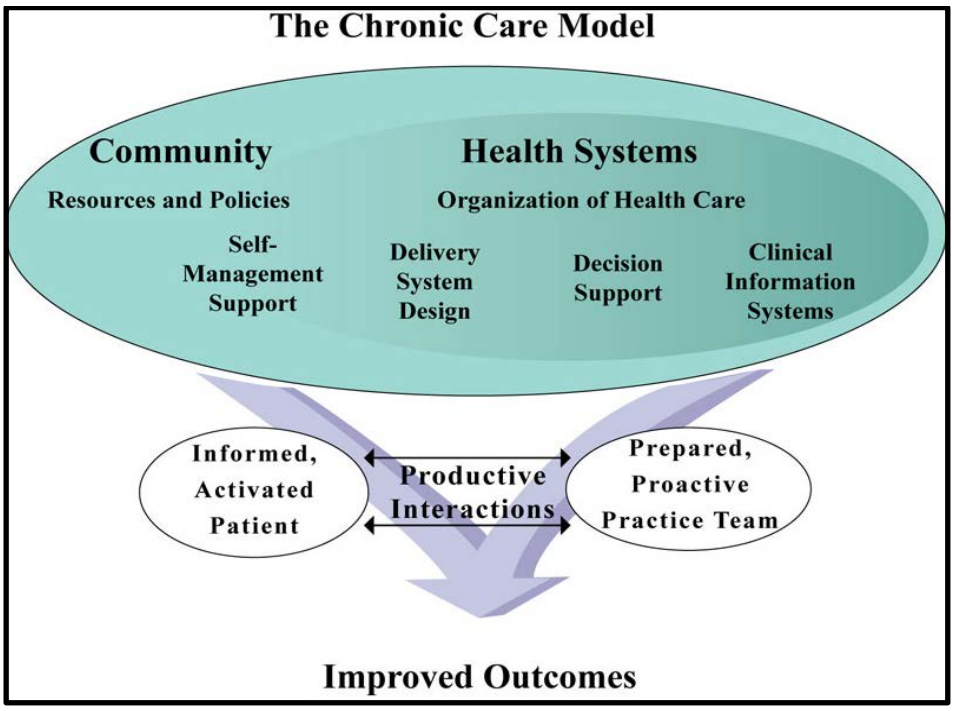

Figure 3.1: Chronic Care Model delivery system design

Adapted from Group Health Research Institute (2006–2013)

c) Decision support

Decision support aims to provide clinical care that is supported by consistent scientific evidence along with patients' preferences. It requires collaborative treatment decisions of both providers and patients to gain support and understanding. Health professionals need to be updated with evidence-based guidelines to make accurate treatment decisions. The guidelines must be well

integrated with timely reminders, feedback, standing orders and other interventions to increase their visibility when clinical decisions are made (Barr et al., 2003; Group Health Research Institute, 2006–2013; Wagner et al., 1999).

d) Clinical information systems

Clinical information systems capture and organise patient and population data to facilitate effective and efficient care through various measures, including providing timely reminders to healthcare providers and patients, identifying targeted populations for proactive care, facilitating care plans for individual patients, sharing information with patients and healthcare providers for care coordination, and tracking performance for practice teams and care systems to ensure quality improvement efforts (Barr et al., 2003; Group Health Research Institute, 2006–2013; Wagner et al., 1999).

e) Self-management support

Self-management is a core element of the CCM. It refers to individual decisions and behaviours in managing chronic conditions on a daily basis. The success of self-management of osteoarthritis mandates active participation by the individual and family members in collaboration with healthcare professionals (Lorig & Fries, 2006). The CCM emphasises empowering and preparing patients to take the central role of managing their health. Self-management support strategies include assessment, goal-setting, action planning, problem-solving and follow-up. To foster a sense of responsibility for elderly people with osteoarthritis, healthcare infrastructure and community resources need to provide continual support to these patients to ensure the successful focus of self-management in the CCM (Barr et al., 2003; Group Health Research Institute, 2006–2013; Wagner et al., 1999).

f) Community resources and policies

The final element of the CCM is community resources and policies. To support chronic care illness, it is important to mobilise community resources to meet the various needs of patients and encourage them to participate in effective community programs. An alliance or partnership with community organisations should be put in place to support and develop interventions to fill service gaps. Lastly, governance needs to be established that advocates for policies to provide continual patient care (Barr et al., 2003; Group Health Research Institute, 2006–2013; Wagner et al., 1999).

3.2.4 Application of the Chronic Care Model

The CCM has been widely applied to chronic illnesses such as osteoarthritis across different healthcare settings and target populations. This section introduces the application of the CCM to osteoarthritis. The CCM was implemented to enable a theoretical examination of self-management and healthcare planning for people with osteoarthritis (Dhatt, Simpson & MacDonald, 2012; Rosemann, Laux, Szecsenyi & Grol, 2008). In another study, the self-management of osteoarthritis using CCM underpinned the examination of self-management of osteoarthritis in a South Asian community to guide on culturally appropriate healthcare services, beliefs and values which influence healthcare behaviours, perceptions and experiences in managing osteoarthritis (Dhatt et al., 2012).

3.2.5 Critical review of the Chronic Care Model

The scope of community resources and policies in the CCM was critiqued to be inappropriately defined, as it excluded the principles of population health and health promotion. The CCM needed to address the concerted effort of socially, environmentally and culturally sensitive factors that affect health behaviour (Barr et al., 2003; Glasgow, Wagner, Curry & Solberg, 2001). In line with the proposed changes, the CCM was further revised into the

Expanded CCM to ensure that policies and programs initiated at the community level met high-quality healthcare services, and to encourage individuals to support each other without compromising on their health and financial status (Barr et al., 2003). Therefore, the CCM required the keen support of healthcare institutions and the social and physical environments, along with empowered individuals and community capacities, to ensure successful implementation (Barr et al., 2003).

It was found that no single element of the CCM had independently contributed to successful implementation; rather, an integrative and supportive health system was necessary to ensure the sustainability of the CCM implementation initiatives (Miller et al., 2013).

While exploring interdisciplinary team members' perceptions of cooperation, a qualitative study by Holm and Severinsson (2012) found that discharge planning of depressed older persons using the CCM identified barriers of implementation. The barriers included lack of organisational, administrative and professional ability to implement and change elements of the CCM, and role ambiguity of the care manager in the promotion of self-management for patients (Holm & Severinsson, 2012). Another study focusing on organisational leaders and clinic staffs with the observation of processes and analysis of documentation identified barriers as multiple competing priorities, lacking consensus on the specificity of expected care processes and poor engagement of physicians (Hroscikoski et al., 2006). Therefore, the integration of each component of the CCM and the full commitment of organisational leaders and healthcare professionals are vital to ensuring the successful implementation of the CCM.

3.3 Social Cognitive Theory

SCT had been widely applied in healthcare settings, as the domains of social determinants of health behaviour and health promotion resonate among various disciplines (Nutbeam & Harris, 2004). In SCT, the focus on self and

society relates to operation of the social structure and personal agency as interdependent entities rather than being dualistic (Bandura, 2002). Humans do not function in isolation but by through interaction with the society. In SCT, human behaviour is not comprehended merely as social, structural or psychological factors alone (Bandura, 1997) but also include environmental factors.

3.3.1 Development of social cognitive theory

SCT was developed by Albert Bandura in 1997. It was derived from Social Learning Theory, where the interactivity of individuals, environment and personal factors determine one's behavioural change (Bandura, 1997). SCT posits that self-system and learning occur in a social context with a dynamic reciprocal interactivity of the person, environment and behaviour (see Figure 3.2). SCT is more commonly referred to as self-efficacy.

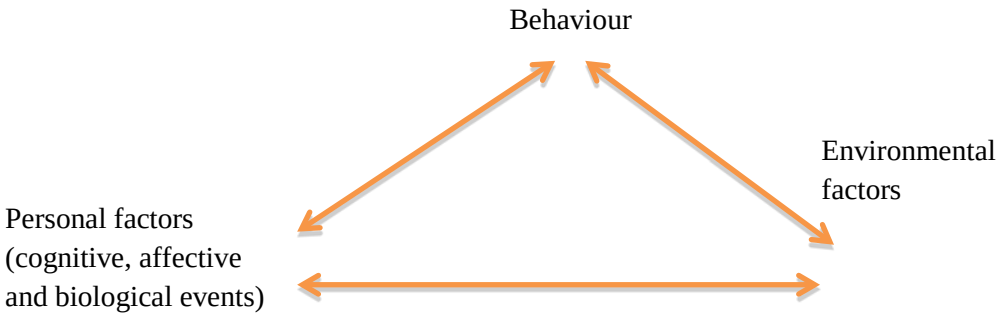

Figure 3.2: Social Cognitive Theory

Adapted from Bandura (1997, p. 391)

3.3.2 Elements of social cognitive theory

SCT—an emergent interactive model—explained the interacting determinants of environment, personal and behaviour that are in constant confluence, thus creating a system of triadic reciprocal causation (Bandura, 1986). The personal factor was derived from cognitive, affective and biological events; behaviour and environmental events interact bi-directionally at different levels of need and emphasis (Bandura, 1997, 2001). A key feature of SCT is the focus on

social effect and its emphasis on external and internal social reinforcement (Bandura, 2001).

Adaptation and changes in human agency function within a matrix of sociocultural influences as people act as both producer and product in their social systems in agentic transactions. Thus, the determinant of behaviour is the outcome from the interaction of the environment and the person. Similarly, the determinant of environment is not the mere outcome of the person and behaviour (Glanz, Rimer & Viswanath, 2008). Observational learning occurs when the person observes the actions and interactions or reinforcements (Bandura, 1997). SCT acknowledges that although environment dictates behavioural change, individuals have the potential to influence the environment to suit their intentions (Glanz et al., 2008). The environment is defined to include social and physical aspects of family members, friends and colleagues that influence and affect the cognitive and affective levels of the person (Glanz et al., 2008).

Five elements were developed in the construction of Social Learning Theory: reciprocal determinism, behavioural capability, observational learning, reinforcement and expectations (Bandura, 1997). Further refinements of Social Learning Theory included the element of self-efficacy, which evolved into the SCT (Bandura, 1997; Greenberg, 2014). The six refinements are outlined below.

a) Reciprocal determinism

The first element of reciprocal determinism is the main concept, and it refers to the dynamic and reciprocal interaction of the person (intrinsic factors of cognitive, affective and biological), environment (extrinsic social context) and behaviour (interaction with stimuli to achieve outcome) (Bandura, 1997; Greenberg, 2014).

b) Behavioural capability

The second element of behavioural capability explains the essential knowledge and skills that guide the person's behavioural responses. Learning takes place through encounters and consequences of behavioural responses, which in turn affect the living environment.

c) Observational learning

The third element of observational learning suggests limitations of observed behaviour, which is an outcome of behaviour 'modelling'. A positive observation tends to lead to a positive behavioural response (Bandura, 1997; Greenberg, 2014).

d) Reinforcement

The fourth element of reinforcement refers to the intrinsic and extrinsic responses of a behaviour affecting the possibility of continuity and discontinuity of a behavioural response. Reinforcements may result in negative or positive behaviour. This is an element of SCT where reciprocal relationship, behaviour and environment interact (Bandura, 1997; Greenberg, 2014).

e) Expectations

The fifth element of expectation refers to anticipated behavioural outcomes, and it may relate to health. Prior to engaging in the behaviour, a person usually weighs the anticipated outcomes or consequences other than drawing on past experiences. Such anticipation can lead to successful behavioural responses. Individuals attach values to expectations and anticipated outcomes (Bandura, 1997; Greenberg, 2014).

f) Self-efficacy

Lastly, the element of self-efficacy refers to a person's self-assurance in performing the behaviour successfully. It is influenced by a person's unique characteristics and capabilities other than environmental factors (Bandura, 1997; Greenberg, 2014). Self-efficacy is a central construct in the development of SCT.

Cultural diversity, such as beliefs and values, are part of the psychosocial systems where experiences are filtered (Bandura, 2002). In this study, elderly Singaporeans were deemed to hold multi-ethnic cultural beliefs and personal values in relation to their approaches to managing severe osteoarthritis and joint replacement surgery.

The system of triadic reciprocal causation of SCT (Bandura, 1997) was applied to this study. The interacting determinants of environment, person and behaviour affect a person's ability to cope with osteoarthritis over time, resulting in the deliberation on the decision to undergo joint replacement surgery (Bandura, 2001). SCT acknowledges a person's past experiences that determined their behaviour, actions and decisions. Past experiences determine the level of engagement, reinforcement and expectations of subsequent experiences.

3.3.3 Application of social cognitive theory

Several disease-specific studies (Curtin, Mapes, Schatell & Burrows-Hudson, 2005; Davis, Carrieri-Kohlman, Janson, Gold & Stulbarg, 2006; Fiala, Rhodes, Blanchard & Anderson, 2013; Maly, Costigan & Olney, 2007; van den Akker-Scheek, Stevens, Groothoff, Bulstra & Zijlstra, 2007; Wierdsma, van Zuilen & van der Bijl, 2011; Wylde, Dixon & Blom, 2012) and one general chronic disease study (Min-lin, 2012) applied SCT to chronic disease management.

In the application of SCT to disease-specific self-management, several studies (Fiala et al., 2013; Maly et al., 2007; van den Akker-Scheek et al., 2007; Wylde et al., 2012) found that preoperative self-efficacy improved the walking and physical performance of older adults undergoing joint replacement surgery before and after surgery.

Patients with chronic kidney disease were found to achieve higher self-efficacy with increased communication, partnership, self-care and medication adherence behaviour (Curtin et al., 2008; Wierdsma et al., 2011). Patients with chronic pulmonary disease who achieved self-efficacy for walking were found to be significantly related to walking performance, and self-efficacy for managing shortness of breath was significantly related to severity of symptoms (Davis et al., 2006). Another study (Clark & Dodge, 1999) that explored the relationship between self-efficacy beliefs and disease management found that self-efficacy was a predictor of the behavioural outcome of exercise and diet of older women with heart disease. These studies showed that SCT is associated with positive changes in healthcare behaviours and outcomes.

In general chronic disease management, one study explored the relationship of self-efficacy, nutritional status, functional ability and QOL in older adults at risk of hospital admission. The findings showed that social support was the strongest predictor for instrumental activities of daily living and self-efficacy in managing chronic disease. Self-efficacy was found to be partially mediated on the effect of health characteristics and depression on HRQOL (Min-lin, 2012). The joint effect of social support and self-efficacy results in social support which fully mediates the effect of health characteristics on self-efficacy, while self-efficacy partially mediates the effect of social support on functional status and HRQOL (Min-lin, 2012). The application of SCT in this study was found to be well supported.

3.3.4 Critical review of social cognitive theory

SCT provides a broad conceptual framework because it seeks to explain complex areas of human phenomena (Bandura, 1986). Self-efficacy, which is a well-known concept, has been validated in many studies (Curtin et al., 2008; Min-lin, 2012; Wierdsma et al., 2011). Behavioural changes using self-efficacy as the determinant of behaviour appear incomplete if self-efficacy is excluded. SCT is relatively broad-based; however, it may be difficult to operationalise it in its entirety.

3.4 Chronic Care Model and Social Cognitive Theory in the Current Study

The CCM (Wagner, 1998) and SCT (Bandura, 1997) provided the conceptual basis for this study. The next section discusses the rationale for selecting the CCM and SCT. The relevant elements of each model and theory that can be applied to the five research questions in this study are discussed in the following section.

3.4.1 Rationale of selecting the Chronic Care Model and Social Cognitive Theory for this study

In this study, both the CCM (Wagner, 1998) and SCT (Bandura, 1997) were selected to inform the five research questions aimed at exploring elderly Singaporeans' perceptions of undergoing joint replacement surgery related to the chronic illness of osteoarthritis. The five research questions are: 1) How do cultural values inform the perceptions of elderly Singaporeans undergoing joint replacement surgery? 2) How do personal beliefs inform the perceptions of elderly Singaporeans undergoing joint replacement surgery? 3) What is the nature of the mental adjustments of elderly Singaporeans undergoing joint replacement surgery? 4) What is the nature of the social adjustments of elderly Singaporeans undergoing joint replacement surgery? 5) How do elderly Singaporeans cope when undergoing joint replacement surgery?

The three key factors of environment, self-management and personal factors were adapted from the CCM (Wagner, 1998) and SCT (Bandura, 1997) to form the interactive determinants of the adapted model (see Figure 3.3) which informed the perception of the elderly participants undergoing joint replacement surgery related to osteoarthritis. The environmental factors were adapted from CCM (Wagner, 1998) and SCT (Bandura, 1997); self-management factor from both CCM (Wagner, 1998) and SCT (Bandura, 1997) and lastly personal factors from SCT (Bandura, 1997) for the current study.

The first extrinsic factor—environmental—encompasses the sub-factors of health system, delivery system design, decision support and community resources. In Singapore, the healthcare system determines the process of care delivery design. The decision support refers to evidence based clinical care delivered from the collaboration of healthcare professionals. This serves as a framework of the continuum of care for the elderly participants. In Singapore, the community resources include both the formal and informal carers and how they impact on the care and support of the elderly participants in coping with the debilitating condition of osteoarthritis and rehabilitation of joint replacement surgery. The environmental factor relates to the following research questions: first (cultural values), third (mental adjustment), fourth (social adjustment) and fifth (coping) research questions as these sub-factors impact how the participants, embedded in their cultural values adjusted and coped mentally and socially during their perioperative journey. Therefore, the environmental factor adopted from the CCM (Wagner, 1998) provides an essential matrix that depicts the current healthcare system and available resources in supporting elderly patients' perioperative experiences.

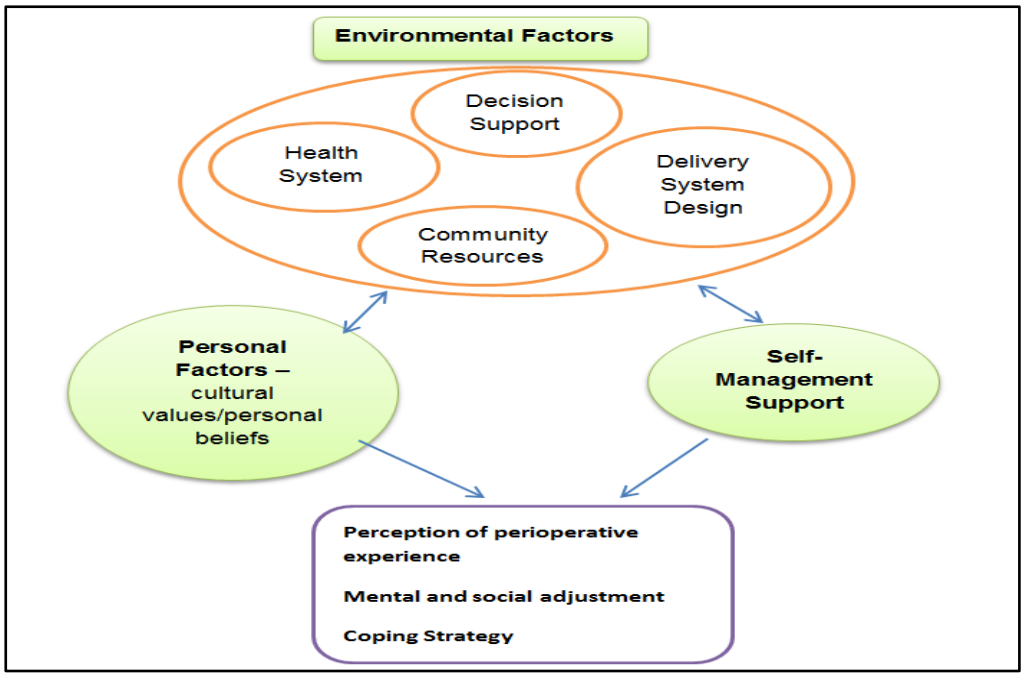

Figure 3.3: Adapted Model

Adapted from Wagner (1998) and Bandura (1997)

The second intrinsic factor—self-management—relates to the active participation of participants in coping with the trajectory of the chronic illness of osteoarthritis. The elderly participants' personal beliefs of seeking active solution will determine their course of action. A positive outlook (optimism) or negative outlook (pessimism) depicts the recourse of severe osteoarthritis by actively seeking treatment to relieve their pain and disability. Self-management was adopted from both the CCM (Wagner, 1998) and SCT (Bandura, 1997). Self-management relates to the following research questions: second (personal beliefs) and fifth (coping) as self-management posed a key influence to the perception of participants undergoing joint replacement surgery.

Thirdly, for personal factors, an intrinsic factor relates to the personal beliefs and cultural values of the participants. Personal factors were adopted from SCT (Bandura, 1997) and relate to the research questions: first (cultural values) and second (personal beliefs) as it impact on participants' perception of their perioperative journey.

The factors of behaviour and clinical management systems were not adopted. The rationale for not adopting the factor of behaviour was that it relates to an outcome from the dynamic interaction of the environment, self-management and personal factors. The focus of this study is to explore participants' perceptions and mental and social adjustments in relation to coping with joint replacement surgery. The factor of behaviour originated from the SCT (Bandura, 1997). Another sub-factor that was excluded from the adapted model was clinical information systems. This factor may have allowed access to medical information for the healthcare providers within the health system, but it did not pose an explicit element of effect to elderly patients in a Singapore context. The element of clinical information systems originated from the CCM (Wagner, 1998).

The adapted model (see Figure 3.3) adopted the key factors of environment, self-management and personal factors as interacting determinants to answer the research questions in this study. The factors of behaviour and clinical information systems were excluded from the adapted model.

3.5 Examination of Health Belief Model and Theory of Planned Behaviour

Theories that were explored as possibilities of application to the theoretical framework for this study included the Health Belief Model (HBM) and the Theory of Planned Behaviour (TPB). In the HBM, four factors are essential determinants of health behaviour: a) perceived susceptibility; b) perceived severity of the illness; c) perceived benefits of performing intended behaviour; and d) barriers to performance (Edberg, 2010). The HBM predicted that people who perceived themselves to be more susceptible to a more serious illness were more likely to perform relevant preventive behaviours (Sharpe & Curran, 2006). HBM suggested that an individual must hold a strong belief that the severity of illness could impact certain aspects of life such as work and family (Shanks, 2009). In the TPB, the three key factors of a given behaviour are: a) attitude towards the behaviour; b) subjective norms; and c)

level of perceived control and self-efficacy (Ajzen, 1991). The TPB predicted that these factors interacted to produce an intended action or actions to perform the behaviour to achieve the behavioural outcome.

Both the HBM and TPB were designed to assess behavioural responses in response to health threats as part of health-promoting behaviour (Molfenter, Bhattacharya & Gustafson, 2012; Saal & Kagee, 2012). Both the HBM and TPB proved successful in predicting the intention of behavioural outcomes, but less successful in predicting the actual behavioural performance in a heterogenous group of patients with chronic diseases such as osteoarthritis where similar behaviour is adaptive at one point in time and maladaptive at another time (Sharpe & Curran, 2006). Both HBM and TPB are predictive models with the propensity to change behavioural outcomes but not appropriate in predicting the chronicity and burden of severe osteoarthritis undergoing a perioperative journey.

3.6 Summary

This chapter highlighted two theoretical frameworks, namely the CCM (Wagner et al., 1998) and SCT (Bandura, 1997), which inform this study's aim of exploring elderly patients' perceptions of undergoing joint replacement surgery. The chapter presented the development of the models and the elements depicting the unique construct of both models. Further, the chapter presented the application of disease-specific and generalised chronic diseases using either the CCM or SCT as the theoretical framework, as well as a review of each model. This chapter also discussed the rationale for selecting particular elements of the CCM and SCT to form the adapted model for this study. Lastly, the justification for not engaging the HBM and TPB was outlined.

Chapter 4: Methodology

4.1 Introduction

This chapter explains the design, method and justification for selecting the qualitative descriptive approach. It also revisits the research questions and describes the sampling approach, before outlining the development of the two interview guides, the ethical considerations and the data collection approach. A pilot study and its evaluation on subsequent interviews are then described. The chapter further explains the data management, modified thematic analysis, data saturation and how rigor and trustworthiness was ensured for the current study. The next section describes the rationale for utilising qualitative methodology for this study.

4.2 Methodology

Qualitative methodology, which is an inductive approach to inquiry, is used to gain deeper insights into the study phenomenon. Quantitative research design, which is a deductive approach to inquiry, is used to test hypotheses and theories through a systematic examination of the relationships of variables (Creswell, 2009; Holloway & Wheeler, 2002); it does not focus on understanding participants' experiences. A quantitative research design is defined as a set of independent variables that measure a dependent variable, while a qualitative design is defined as the themes and subthemes of the study phenomenon (Creswell, 2009). Central to qualitative research is the emic perspective or data interpretation of the study phenomenon. Data interpretation may lead to new or modified theoretical beliefs, or it may unfold the essence of the phenomenon (Holloway & Wheeler, 2002). Qualitative research is appropriate to address research questions that require exploration to understand the perceptions and experiences of participants and to obtain a deeper understanding of the central phenomenon (Creswell, 2009). The next section justifies the selection of the qualitative descriptive approach.

4.3 Justification for Selecting a Qualitative Descriptive Design

The qualitative descriptive approach was selected to provide insights into the perceptions of elderly Singaporeans' undergoing joint replacement surgery for the treatment of their chronic condition of osteoarthritis. A qualitative descriptive approach enabled an emic perspective of the voices of the participants to be heard (Magilvy & Thomas, 2009) and described in-depth (Sandelowski, 2010). This approach is instrumental in relation to research methods as it serves to inform perceptual components that resist simple classifications (Sandelowski, 2010) and focus on descriptive validity (Sandelowski, 2010). Descriptive studies produce rich accounts of participants' thoughts and perceptions in their own voices (Sullivan-Bolyai, Bova & Harper, 2005). Therefore, a qualitative descriptive study was deemed the best method to gain a deep understanding of the elderly participants' perceptions of undergoing joint replacement surgery. Sandelowski (2000) posited that qualitative description is a fundamental inquiry that requires descriptive interpretation.

The qualitative descriptive approach has been widely applied in disciplines such as nursing (Dickinson, McCall, Twomey & James, 2010; Dickson, 2013; Digby, Moss & Bloomer, 2012; Dilworth, Higgins & Parker, 2012; Ong et al., 2013), medicine (Amery & Lapwood, 2004; Dew, 2006), speech therapy (de Rauville, Chetty & Pahl, 2006), physiotherapy (Anaf & Sheppard, 2010; Bring, Soderlund, Wasteson & Asenlof, 2012) and sociology (Jennings, Southall & Gagne, 2013; Sullivan et al., 2010). The qualitative descriptive approach has also been used in mixed method studies (DiGiacomo, Lewis, Nolan, Phillips & Davidson, 2013; Swallow et al., 2012) to complement and lend more description to the quantitative component of a full research study.

The next section revisits the research questions that serve to guide the conduct of this study.

4.4 Research Questions

Five research questions guided the process of data analysis to explore and gain a better understanding of elderly Singaporeans' perceptions and psychosocial adjustments of undergoing joint replacement surgery:

1. How do cultural values inform the perceptions of elderly Singaporeans undergoing joint replacement surgery?
2. How do personal beliefs inform the perceptions of elderly Singaporeans undergoing joint replacement surgery?
3. What is the nature of the mental adjustments of elderly Singaporeans undergoing joint replacement surgery?
4. What is the nature of the social adjustments of elderly Singaporeans undergoing joint replacement surgery?
5. How do elderly Singaporeans cope when undergoing joint replacement surgery?

The next section explains the rationale of selecting convenience sampling and details the inclusion and exclusion criteria for the purpose of this study.

4.5 Sampling Approach

Convenience sampling was used to recruit participants undergoing THR and TKR surgery. This sampling approach selected participants who could elicit rich descriptive data of their perioperative journeys (Holloway & Wheeler, 2010). Participants with direct or special knowledge of their perioperative experiences of THR or TKR during the preadmission testing at an acute tertiary institution in Singapore were selected by the site researcher based on the inclusion and exclusion criteria over a period of one year from 16 October 2011 to 15 October 2012. The participants were selected because they were undergoing joint replacement surgery at the point of recruitment, and they were willing to share their perioperative experiences of their joint replacement surgery.

4.5.1 Inclusion criteria

The inclusion criteria were: adult patients who were 65 years of age or older; undergoing either primary THR and TKR related to osteoarthritis; English-literate; male or female; Singaporeans and Permanent Residents; from any ethnic group; and at an acute tertiary hospital in Singapore.

4.5.2 Exclusion criteria

The exclusion criteria were: patients undergoing secondary or revision of hip or knee replacement; and patients with the presence of cognitive impairment as diagnosed by the primary provider. Patients' case notes were reviewed for clinicians' documented evidence of any presence of cognitive impairment.

The participants were recruited from an orthopaedic department in a 1,500-bed, local acute tertiary institution in Singapore.

The next section describes the development of the semi-structured interview guides and the justification for repeated interviews.

4.6 Development of Semi-structured Interview Guides

The first and second semi-structured interview guides (see Appendix 4.1 and 4.2), which were intended for delivery over two time points for each participant's perioperative journey, were developed from the integrated literature review (see chapter 2) (Fujita et al., 2006; Jacobson, Myerscough et al., 2008; Sjoling et al., 2005). Semi-structured interviews are widely used in qualitative studies to elicit thick descriptions of study participants.

Similarly, other descriptive qualitative studies on older persons (Mosimann et al., 2008) and postnatal depression (Huang & Mathers, 2008) utilised semi-structured interviews to obtain meaningful insights Creswell (2009) posited

that the utilisation of semi-structured interviews is an effective approach to exploring participants' perceptions and experiences of a central phenomenon.

A semi-structured interview approach was selected to explore the perioperative experiences of elderly patients undergoing joint replacement surgery over the three different phases of their perioperative journey. This allowed a balance between control and flexibility, with a focus on the research study. One-to-one interviews enabled easy management and the development of close rapport to give participants the opportunity to think, speak and be heard; therefore, they are well suited for in-depth and personal discussions (Holloway, 2005). This is congruent with Mason's (2009) belief that the researcher's role is to construct or reconstruct the meanings of participants' perceptions rather than merely excavate knowledge during the intended study. Using a semi-structured interview to gather storied lives enables rich, in-depth data that are dependent on the interviewees' personal descriptions of events (Holloway, 2005).

The justification of the two repeated semi-structured interviews was informed by the integrated literature review found in Chapter two (Gustafsson et al., 2010a; Marcinkowski et al., 2005; McHugh & Luker, 2012; Parsons et al., 2009). In one qualitative study that explored patients' experiences of outcomes from total knee replacement, the first interview was conducted three months before surgery and the second interview was conducted six months after surgery for the ten participants (Woolhead & Dieppe, 2005). Further justification was informed by another qualitative study that described the experiences of THR patients before, during and after hospitalisation, where the first interview was conducted 4 days after operation and another eight to 12 weeks after surgery for the seventeen participants (Montin et al., 2002).

Further justification for repeated interviews was informed by a grounded theory study (Marcinkowski et al., 2005), where the first interviews were conducted for each of the nine participants between three weeks and three months after surgery. The second interviews for each of the four participants

aimed to clarify information and test concepts. Lastly, the third interview was conducted for two participants with second TKR surgery to verify the accuracy of the information. In another qualitative study (Fujita et al., 2006) that described osteoarthritis participants' experiences before and after total hip arthroplasty, the researcher interviewed 13 participants once and seven participants twice after regular follow-up visits to verify the accuracy of the information. The current study adopted the approach of repeated interviews because they provided detailed sharing of information and insights regarding participants' perioperative journeys.

In this study, repeated interviews were planned to be conducted over two different time points, with each interview lasting for one hour. The first interview (interview 1) was planned from the period of the third to the tenth postoperative days, as it focused on the preoperative, intraoperative and an initial part of the immediate postoperative period (see Appendix 4.1). The second interview (interview 2) was planned one month after discharge so that it coincided with the first outpatient consultation with the primary provider. The second interview focused entirely on the postoperative period (see Appendix 4.2). Such repeated interviews allowed participants to reflect on their perioperative journeys as vividly as they could.

Interview guides 1 and 2 (see Appendix 4.1 and 4.2) incorporated clear subject and focus questions with appropriate prompts and probes to guide participants who may have had difficulty understanding and sharing their experiences during the course of the interviews. These guides served as important guidelines during the interviews to ensure consistency. The interview guides were centred on eliciting concrete answers surrounding the perceptions of the participants' perioperative experience.

The next section describes the ethical considerations, including confidentiality, data security and data management undertaken as critical ethical components of this study.

4.7 Ethical Considerations

Ethics approval was sought and obtained from the Nursing Division, Medical Division and Centralised Institutional Review Board (CIRB) for this study (see Appendix 4.3). The approved study period was one year, from 16 October 2011 to 15 October 2012.

Both the principal and site investigators completed the Collaborative Institutional Training Initiative (CITI) as part of the requirement for all researchers. The site principal investigator, an orthopaedic specialist nurse explained the focus of the research study to all participants during the recruitment process. Participation was entirely voluntary, and the participants were allowed to withdraw from the study at any point. Participants were informed that there was no foreseeable risk or harm involved in this study but their involvement in the two interviews may pose some inconvenience during their rehabilitation period. Further explanation was given that participants may postpone or reschedule the interview sessions if they experienced some postoperative pain or discomfort just prior or during the interview sessions. Careful consideration was taken to ensure comfort and ease of these elderly participants during the interview (World of Medical Association, 2013). Participants were asked on the choice of the venues of their interviews to allow comfort and familiarity.

With the use of a Patient Information Sheet (CIRB) (see Appendix 4.4), informed consent was taken by the site principal investigator from participants who agreed to participate in the study after careful explanation. After the Patient Information Sheet (CIRB) forms had been signed, participants were asked to complete the Data Collection Form (see Appendix 4.5).

Participants were informed that the interview sessions would last about one hour and be audio-taped and transcribed. Participants were also informed that the principal investigator would approach them to clarify any transcriptions of the interviews if necessary. The principal investigator was not involved in the

patient care of the orthopaedic department and thus, allowed the participants to share their insights and experiences with ease voluntarily and without any obligation.

4.7.1 Confidentiality

A close rapport and relationship was built between the principal investigator and the participants during both interviews. Therefore, complete anonymity of the participants to the principal investigator during the research study was not possible. However, measures were taken to protect the participants' identities from others. The audio files and corresponding transcripts were labelled with participants' pseudonyms, and healthcare professionals mentioned during the interviews were de-identified during the transcription process. These critical measures were set in place to ensure confidentiality.

4.7.2 Data security

Participants' data, such as the Patient Information Sheet (CIRB), Patient Information Form, recorder containing audio-taped interviews, verbatim transcript sheets, verified transcripts, memos and the researcher's (principal investigator's) reflective diary were kept under lock and key by the researcher at the Alice Lee Centre of Nursing Studies (ALCNS), National University of Singapore. Other information, such as digital audio-taped interviews, soft copies of verbatim transcripts and data analysis using NVivo 9 (QSR International, 2014) software, were kept in the local drive of a laptop with a back-up hard drive. The laptop and hard drive were password-protected to ensure sole accessibility by the researcher, as well as data safe-keeping and confidentiality.

The next section outlines the data collection approach using the repeated semi-structured interviews.

4.8 Data Collection Approach

This section details the data collection approach at the clinical site of investigation, the access and recruitment process of participants, the interview venues, and the conduct of the repeated interviews (see Figure 4.1).

4.8.1 Accessing and recruiting participants

Target participants were identified during the phase of Preadmission Testing (PAT) and recruited on a convenience basis over one year in the outpatient area of the orthopaedic department. During the PAT, participants had their necessary diagnostic investigations and preoperative assessments, such as blood tests, radiological investigations, preoperative education and pre-anaesthetic evaluation prior to scheduled surgery. The principal investigator and the site researcher discussed the process of recruiting and selecting participants prior to the start of the research study. The purpose of the research

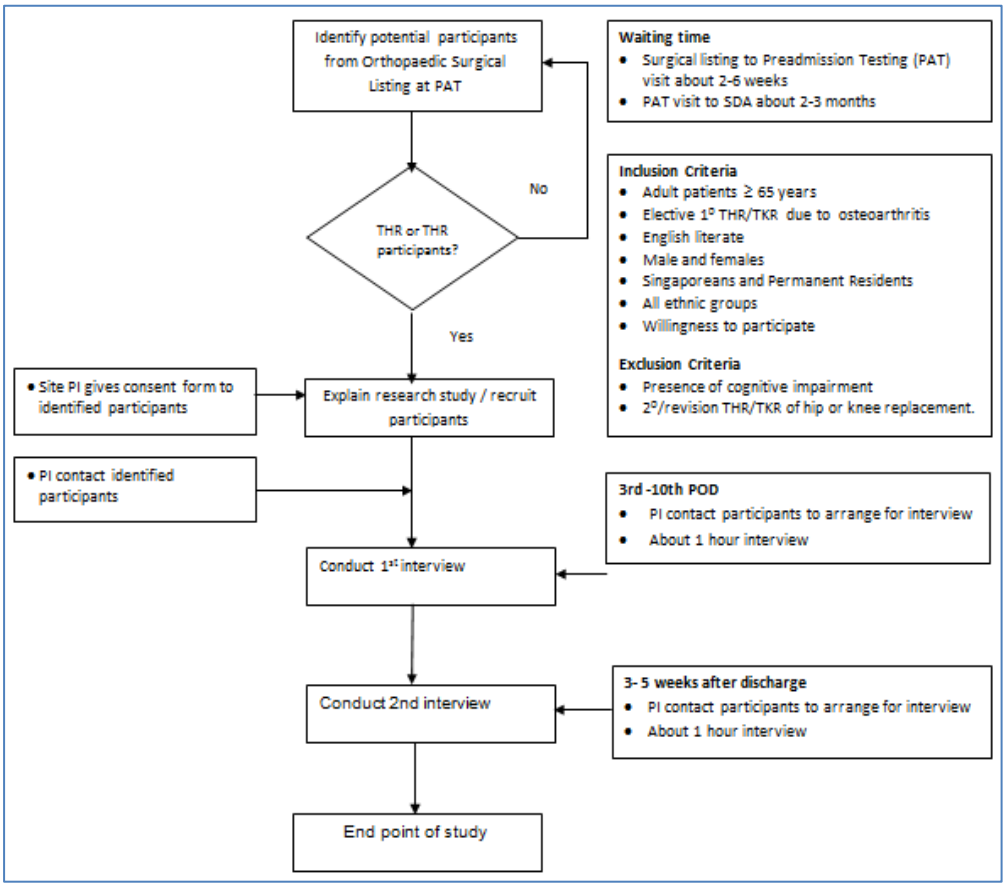

Figure 4.1: Procedure of Recruitment

study was explained by the site researcher to target participants prior to their recruitment. Informed consent was obtained by the site researcher after the participants agreed to participate in the study. Participants were told that they were expected to undergo two interview sessions lasting about one hour each during the course of the research study. A Data Collection Form (see Appendix 4.5) was completed by the recruited participants with the help of a site researcher to capture the demographics and other relevant information for the study. Participants were informed that they would be approached to clarify any transcriptions after the interviews if deemed necessary.

Approaches to interview 1

After the site researcher had identified and recruited participants, the researcher contacted each participant on the phone to arrange a mutually convenient date and time for the interview. The researcher was mindful to initiate and adopt a natural style during the conversation and first contact over the phone to build a relationship of trust, involvement and equality by using phrases such as 'Can you tell me when it will be convenient to meet up with you?' as opposed to 'When will it be convenient to conduct the interview?' It was important to establish a good rapport and relationship with the participants to put them at ease as part of building an element of trust. It was important that the researcher demonstrated confidence in conducting the interview as a professional, as well as showing genuine and keen interest in listening to the shared information and respect to the individuality of the participants during the course of the interviews (Legard, Keegan & Ward, 2010).

Each participant received S$25 for each interview to cover travel costs. Therefore, in total, all participants received S$50 each upon completion of both interviews. This study received research funding from the MOH Nursing Research Committee (MOHNRC), Singapore (see Appendix 4.6).

Interview 1 (see Appendix 4.1)

The first interview was initiated by giving the participants an introduction, which explained the purpose of the study as follows:

> I am the researcher who will take you through this interview, which will last about an hour. I am keen to understand your perioperative experience undergoing joint replacement surgery. In this first interview, we will focus on the period that you discuss and decide with your doctor to undergo surgery, the waiting period before the surgery, the period that you were in the operating theatre until this time after your surgery.

Interview 2 (see Appendix 4.2)

The second interview took place around one month after the same participant from interview 1's operation and after the first outpatient consultation in order to allow participants adequate recovery and comfort postoperatively during the interview. The primary intent of the second interview was to capture the period of postoperative experience in which the participants underwent the phase of rehabilitation, recovery and adaptation after the surgery.

Participants were contacted over the phone to arrange a second interview. They were asked for the date of their first scheduled doctor–outpatient consultation after surgery. Generally, they preferred to hold their second interview one or two days after their first doctor consultation, as they were too exhausted to participate in an hour long interview then.

Prior to interview 2, participants were contacted and reminded of the scheduled interview. During the second interview, the study's purpose was reiterated, and the focus of the second interview was explained to ensure clarity. Interview 2 started as follows:

> We had a good interview session together about a month ago. I would like to continue from where you shared with me on your perioperative

> experience. This is the second interview that I will take you through and, similarly, this session will take about an hour. I am keen to understand your perioperative experience undergoing joint replacement surgery. For this interview, we will focus on your postoperative experience until this time after your surgery. Please feel free to stop the session any time if necessary.

The next section describes the interview venues as preferred by the participants.

4.8.2 Venue of interviews

All participants were contacted by phone and given a choice of the interview venue to ensure their comfort and familiarity during both interviews. Three participants selected the Ward Dayroom for their first interviews, as they were still hospitalised at this time. The remaining 11 participants preferred to have their interviews in the comfort of their homes after being discharged. The second interviews for all participants were conducted at their homes, except for one participant (FC12), who requested the interview to be held at the nearby community centre.

The next section describes the field diary and memos used to capture observations, insights and reflections during the course of the interviews.

4.8.3 Field diary and memos

Observations made during the interviews were recorded promptly in a field diary and transferred into memos in NVivo 9 (QSR International, 2014) after each interview to capture the experiences of participants during the period of study. The memos captured the observations, insights and reflections during the period of data collection, and the field diary was a valuable resource to capture accounts and insights during the data collection and analysis (Yin, 2011). The field notes demonstrated the active participation of the researcher

during the data collection. These notations were carefully woven into the data to affirm the themes and subthemes in capturing the perceptions of elderly patients undergoing joint replacement surgery. Data collection was performed over a one-year period.

The next section describes the process of achieving data saturation in this study.

4.8.4 Data Saturation

In qualitative research, data saturation is reached when no new information emerges during concurrent data collection, and when negative cases have been fully investigated to ensure data applicability (Creswell, 2013; Sandelowski, 1995). A negative case analysis was conducted throughout the research team's discussion to necessitate any disagreements and resolutions from the researcher's expectations and interpretations (Brodsky, 2008). The deliberation on negative cases allowed the re-examination and verification to consider other possible alternatives and explanations (Miles, Huberman & Saldana, 2014).

The recruitment of the fourteen elderly patients was completed when theoretical and data saturation occurred (i.e., when information became repetitive) (Marshall, 1996). This was achieved when no new or relevant information, such as new dimensions, consequences, actions or interactions, appeared to be emerging during the coding process (Glaser, 1978; Glaser & Strauss, 1967). Data saturation is sometimes used interchangeably with theoretical saturation, and it involves obtaining data until no new information emerges or is considered critical in ensuring data applicability in qualitative research (Sandelowski, 1995). Category saturation occurs when one category is saturated, while theoretical saturation occurs when all categories are saturated (Glaser & Strauss, 2012). The recruitment of participants was completed when new categories or explanations stopped emerging, or when both category and theoretical saturation occurred (Marshall, 1996).

In this study, data saturation occurred when identified coding fit consistently into the categories of 'pain and disability' until no new coding emerged for this category. Similarly, theoretical saturation occurred when all coding fit consistently into categories such as 'enduring pain and disability', 'awareness of self-image' and 'Yin-Yang of foods for the recovering body from surgery' and other remaining categories until no new coding emerged for all categories.

One example of the process of data saturation is further described below. New coding information was sought in the category of 'enduring pain and disability', as participants shared their experiences of living in pain as their bodies deteriorated into disability during the preoperative phase. Participants coped by withdrawing from travelling with family members and friends, social events and quitting their work due to increasing pain and mobility constraints. New codes were explored regarding how participants coped as they endured the pain and disability until no new codes were found for this category of 'enduring pain and disability' during the process of data analysis.

Data saturation was reached at the twelfth participant, and a further two participants were recruited and their verbatim transcripts were analysed to confirm data and theoretical saturation.

The next section describes the evaluation of the pilot interview, which provided important feedback to review the interviews for subsequent repeated interviews.

4.9 Pilot Interview

Pilot interviews for each interview guides (1 and 2) were conducted on one participant who met the convenience sampling criteria. This participant's interview was independent from the main study, and the results served to examine any ambiguity in each guide to review the interviewing approach and time taken. Modification was then made accordingly. The data from the pilot

interview were included in the main analysis, as they contained rich and thick descriptions from the participant.

4.9.1 Evaluation of pilot interview

A detailed evaluation of pilot interviews 1 and 2 (repeated interviews) was conducted in a discussion with the researcher's main and co-supervisors to review the necessary changes for subsequent interviews. Based on the evaluation of the pilot interview, the following changes were made to the repeated interviews:

Interview 1: The participant was informed that the focus of the first interview was from the time that he decided to undergo surgery until the immediate postoperative period. This period encompassed both the preoperative, intraoperative and immediate postoperative period. However, the participant related preoperative as the period when he experienced knee/hip pain and disability related to osteoarthritis prior to surgery. His waiting time for surgery was only half a month as he (Malay race) was operated on during the Chinese New Year, when most Chinese patients avoid surgery because of the festive season. The participant found it more meaningful to recall and share his experiences during the period when he first knew that he had osteoarthritis in his knee.

Therefore, the change instituted into interview 1 was to explain the preoperative period to all participants in the main study. The preoperative period encompassed the time when they were first diagnosed with knee or hip osteoarthritis until their immediate surgery; therefore, it provided more meaning for them to share their perioperative journey (see Appendix 4.1).

Interview 2: During this interview, the same participant was relating his information back and forth from the first interview despite the researcher explaining and emphasising that the focus of the second interview was his postoperative experience from the end of the first interview. He experienced

some difficulty relating from where he had stopped at the first interview, despite cues given by the researcher. The description of the repeated interviews from the pilot interview saw some overlap of information on the postoperative experiences. The participant shared his immediate postoperative experiences as vividly as he had during the first interview instead of just focusing on the postoperative experience during the second interview. It would have been too limiting to omit sharing experiences of the immediate postoperative period during the second interviews.

Therefore, interview 2 was revised to allow participants to have more time to move back and forth from the preoperative period to allow them continuity and connection. This information overlap affirmed the accuracy of the information of the perioperative experiences. Essentially, it accorded the participants the ability, fluidity and flexibility to share and connect their postoperative experiences vividly and freely to provide rich, textured data. The revision to the second interview appended the statement: 'Please feel free to relate back to your experience before, during and the early part after surgery if you need to connect your experience for this interview' (see Appendix 4.2). However, the emphasis of the second interview remained on the postoperative phase to avoid data redundancy.

After the pilot interview, the probing questions in the interview guide were also revised to include 'religious faith', as the first participant shared the effect of religious faith on his perioperative journey during the joint replacement surgery (see Appendix 4.1 and 4.2).

Several learning points were observed in the pilot interviews. First, the participant frequently gave short answers during the course of the repeated interviews. Upon reflection, the researcher found that inadequate time was given to the participant to pause, think and speak, and prompts were frequently used, which appeared to disrupt the participant's flow of thought. Therefore, the interviewer made a conscious effort to stay silent and be patient in order to give the elderly participants more time to reflect and elaborate on their

experiences with minimal interruptions. Probing questions and cues were only used when participants appeared lost, unable to proceed with the sharing or needed assistance. The data from the pilot interviews were included in the main analysis, as they provided rich descriptions of the phenomenon.

The next section describes how the data were managed to ensure data consistency after the interviews were conducted.

4.10 Data Management

The researcher was solely involved in all 14 repeated interviews and transcriptions to maintain consistency in the interview approach for all participants (two interviews each for 14 participants). All 28 interviews (1 and 2) were digitally recorded and transcribed verbatim. Transcription is an essential research process, as it provides a verbatim account for both participants and the researcher to ensure data accuracy and maintain the authenticity of the verbal interviews (Benner, 1994; Streubert & Carpenter, 2011). Transcriptions were performed using NVivo 9 (QSR International, 2014)—a computer software tool used for qualitative data management. The 28 audio recordings were imported into NVivo 9 (QSR International, 2014), and transcriptions were created using Microsoft Word. All audio recordings and transcriptions, field notes were stored securely on a password-protected laptop, and a duplicate copy was locked in the office of the researcher's main supervisor for a period of 10 years post-publication, before being destroyed. All research data were encrypted and accessible by the principal investigator only. This was to prevent breach of data security.

The next section describes the details of the thematic analysis described by Braun and Clarke (2006), which guided the data analysis of this study. The thematic analysis was modified for the current study.

4.11 Data Analysis

In this descriptive qualitative study, data analysis was based on thematic analysis described by Braun and Clarke (2006). The thematic analysis method focuses on identifying, analysing and reporting patterns within data (Braun & Clarke, 2006). This type of analysis has a series of stages and steps that do not progress in a sequential manner, as it requires the researcher to move back and forth between stages during the process of data analysis (King & Horrocks, 2010). Braun and Clarke (2006) posited that the flexibility of thematic analysis provides theoretical freedom by providing rich and in-depth analysis to data complexity. The sixth step of thematic analysis—producing the report by Braun and Clarke (2006)—was omitted, as report writing was not conducted as part of the data analysis.

The next section describes the thematic analysis that was undertaken.

4.11.1 Thematic analysis

The thematic analysis by Braun and Clarke (2006) was used for this study's approach to data analysis. This section describes the five-step analysis applied to this study. The sixth step was excluded in the analysis because it related to producing the report.

Familiarisation

The researcher needs to be closely engaged and familiar with the data (Braun & Clarke, 2006). In this study, the researcher conducted all interviews for the 14 participants and transcribed all 28 interviews. The researcher became immersed with, and stayed close to, the data during the transcription from the digital recordings. The digital recordings of the interviews were played and re-played for the purpose of transcription. The researcher read the transcription twice before coding began. The first reading was to obtain a good feel for the initial ideas and understanding of the data, as well as the context of the

interviews and the context in which statements were made by the participants. The second reading of the transcriptions involved the researcher writing notes (Braun & Clarke, 2006), linking to the transcript and reviewing phrases that addressed the research questions.

Generating initial codes

When generating initial codes, the transcription needs to be analysed systematically and repeatedly to identify meaningful codes (Braun & Clarke, 2006). In this study, the researcher read the transcription line by line in a systematic manner and then analysed for initial and subsequent codes using NVivo 9 (QSR International, 2014). It took considerable time to identify the relevant codes and emerging themes. The focus was to identify as many codes as possible at this stage to avoid potentially omitting codes, subthemes and themes. Certain codes were annotated and linked to memos for better description and meaning of the codes. Similar codes were then identified and categorised. The researcher had to repeat the coding process several times after discussions with the research supervisors due to the inclination to use technical or medical terms during the process of coding. Some examples of more technical coding were ‘patient-controlled analgesia (PCA) pump’ and ‘guilty’. The coding process was revised in order to utilise fewer technical terms and provide a more emic perspective. The coding terms were replaced with ‘receiving information in using the pump’, ‘operation’ and ‘feeling guilty towards family’.

During this phase, the researcher started to highlight key phrases that captured participants’ insights in relation to the research questions. Recurring categories included ‘Pain is always there. Pain might occur any time, there is no signal given’. Strong and profound insights and experiences were highlighted as initial codes, such as ‘that period was…a torture you know. In fact, the period until the surgery day, the very day also I was in fear, live in fear’.

The coding process undertook a deductive approach, as it was guided by the research questions. The researcher highlighted phrases and words, which were coded in NVivo 9 (QSR International, 2014). The coding was categorised into 35 common categories to capture the essence of the perioperative experiences of elderly patients undergoing joint replacement surgery. Reorganising the common codes to address the focus of the research questions was a tedious process. Some initial codes that were found not to address the research questions were kept aside for revisiting if necessary, such as 'financial class' and 'thromboembolism-deterrent (TED) stockings'. Some examples of code categories were 'preparing for surgery' (73 codes), which addressed research question 1, and 'need to be independent' (16 codes), which addressed research question 4. The revision of the coding process was made possible by staying close to the data.

Thematic analysis

In thematic analysis, inductive analysis is employed with care so as not to fit the data into a pre-existing frame (Braun & Clarke, 2006). In this study, the researcher made a conscious effort to put aside any analytical preconceptions, thereby allowing the thematic analysis to be driven by the data (Braun & Clarke, 2006). Codes and categories that befitted the overarching theme of 'journey to regain life' were analysed. The researcher was immersed during this period of analysis and delved into the details of coding and categories, going back and forth to generate and review emerging themes and subthemes. For example, the data analysis found that participants attempting various complementary therapies over the years led to the abstraction of the theme 'placing hope on complementary therapy'. The initial themes and subthemes emerged from the process of analysis across the datasets. A thematic map consisting of themes and subthemes was initiated to fit into the main theme.

Reviewing themes

In reviewing the themes, the data were subjected to two levels of review to initiate themes, subthemes and eventually a thematic map to depict the perioperative journey.

Level 1: The initial themes and subthemes, with its subset of codes and categories, were read and re-read to ensure a coherent pattern (Braun & Clarke, 2006). In this study, codes and categories that did not belong to a category or outlier after the reading and re-reading were re-categorised and rearranged until a coherent pattern of themes and subthemes emerged. For example, the codes relating to pain before and after surgery were found to be expressed frequently. During the initial stage of coding, pain was categorised into 'before, during and after' operation. The initial themes and subthemes were revised and re-categorised after several discussions and deliberations with the research supervisors. Some examples of re-categorisation relating to pain were 'limiting pain', 'when the pain begins' and 'hope for the pain to go away'.

Level 2: A thematic map using a NVivo 9 (QSR International, 2014) relationship diagram was attempted in order to create a visualisation of the relationship between the themes at the initial stage. Eventually, the researcher used the manual process in mapping the relationship of categories and subthemes instead of using NVivo 9 (QSR International, 2014), as it was more comprehensive and flexible. NVivo 9 (QSR International, 2014) was used mainly for transcription, storing field notes, memos, coding and categories. The relationship between the themes and subthemes were reviewed if there was a meaning in the data as a whole. If there was no relationship between them, it was necessary to revisit step three (searching for themes) and step four (reviewing themes) (Braun & Clarke, 2006). When the relationship between the themes and subthemes was found to be meaningful, the data analysis progressed to step five (defining and naming themes). During the process of analysis, the researcher revisited steps three and four because emerging

subthemes and themes changed multiple times. There was also further discussion and deliberation on the data, as the focus was on answering the research questions.

Defining and naming themes

The aim of this stage was to capture the essence of each theme (Braun & Clarke, 2006). In this study, each theme and subtheme were analysed, along with associated narratives from the transcripts, to make sense of each theme in order to ensure correct descriptions and interpretations of the transcriptions. The researcher deliberated with the research supervisors to formulate meaningful themes to depict the true phenomenon of the elderly patients' perioperative journeys during joint replacement surgery. A further explanation of defining and naming the themes and subthemes can be found in Chapters 5 and 6.

The next section presents the rigor undertaken to ensure the data accuracy and integrity of this qualitative descriptive study. Each consideration of rigor—credibility, transferability, dependability, confirmability and reflexivity—will be further described.

4.12 Rigor in Qualitative Research

Rigor reflects the importance of data accuracy and consistent integrity to ensure trustworthiness (Lincoln & Guba, 1985; Sandelowski, 1986) in relation to nursing research. Qualitative researchers need to stress the utility of findings and address the quality in qualitative research studies as part of establishing 'evidence' (Nelson, 2008). The criteria to establish rigor or 'trustworthiness' are credibility, transferability, dependability, confirmability and reflexivity (Fontana, 2004; Guba & Lincoln, 1989). In this study, rigor was applied throughout the data collection and analysis process using the established criteria in the following sections.

4.12.1 Credibility

Credibility is described as a parallel construct to internal validity (Guba & Lincoln, 1989). Central to credibility is the establishment of deliberate matching of participants' constructed perceptions or experiences within their own context and the researcher's interpretation of the study phenomenon (Guba & Lincoln, 1989). Credibility can be validated through 'prolonged engagement, persistent observation, peer debriefing, negative case analysis, progressive subjectivity and member checking' (Guba & Lincoln, 1989, p. 237).

In this study, the researcher was deeply engaged with the study phenomenon, as she conducted all interviews for the 14 participants and transcribed all 28 interviews. The researcher read the transcripts and reviewed the audio recordings repeatedly during the process of coding to draw upon emerging themes and subthemes. Close observations made during the interviews were captured using a field diary and memos. The researcher used the field diary to capture minute details such as participants' gestures and expressions other than the environment during the interviews. Memos were also used to capture the researcher's insights and thoughts during the study period to contribute to the rich data for all interviews.

The research team consisted of the researcher and two research supervisors. Both the researcher and the main supervisor have perioperative and perianaesthesia working experience, and the co-supervisor is a methodological expert on qualitative studies. Weekly discussions were held by the research team through face-to-face or Skype meetings. Such supervision and constant reviews during the data analysis process provided consistent data credibility. Regular reviews of the coding and emerging subthemes and themes, along with the transcripts, audio recordings, field notes and memos, were integral to strengthening the findings and ensuring rigor of the data analysis.

Each repeated interview was analysed using paired analysis and then contrasted with the large sampling frame of all repeated interviews in relation to the perioperative journey to ensure credibility (Miles et al., 2014).

Negative case analysis was conducted throughout the research team's discussions to necessitate any disagreements and resolutions from the researcher's expectations and interpretations (Brodsky, 2008). Deliberations on negative case analysis allowed for re-examination and verification to consider other possible alternatives and explanations (Miles et al., 2014). In this study, the researcher had to modify the coding multiple times during the data analysis process, as the coding was found to be too technical and more inclined towards the utilisation of medical jargon such as 'preoperative', 'intraoperative' and 'postoperative'. This process challenged the researcher's thoughts and descriptions of the data to be more emic, and it demonstrated the constant need to stay close to the data (as discussed in Chapters 5 and 6) in order to establish the transferability of the study's findings. The coding was replaced with phrases such as 'before operation' and 'after operation' to avoid medical and technical jargon. Progressive subjectivity was approached with the re-examination of every case after the initial analysis.

Member checking, or member validation, is considered crucial for establishing credibility where the researcher has passed the summary of the verbatim transcript to the participants to verify the accuracy of the information (Guba & Lincoln, 1989). Member checking is regarded as a controversial practice, as it embodies what is commonly referred to as 'the crisis of representation', or the accuracy in describing and interpreting the lives of others (Sandelowski, 2008). Member checking raises many epistemological and ethical questions in regards to participants' lives (Sandelowski, 2008). Participants may not necessarily be in the best position to verify transcripts or descriptive field notes captured from the interviews. They may encounter difficulty recalling what they actually expressed or shared, or they may regret having said or done something; therefore, they may view the member-checking process as a means to erase the past and their discomfort (Sandelowski, 2008).

Participants may feel obligated to the researcher to validate the descriptions and interpretations, or they may be completely disinterested. Such a process may lead to more confusion rather than confirmation, as participants may alter the information they shared earlier and invite new experiences (Angen, 2000; Sandelowski, 2008). The notion or idea of returning results to participants for verification may not lead to actual verification. Therefore, member checking was not employed in this study. Instead, credibility was increased through the researcher's persistent observations and prolonged engagement during the interview sessions to build trust and rapport, understanding the different cultural practices and consistently checking for misinformation by the researcher and participants (Creswell, 2013).

Thus, the credibility of this study was validated and described using prolonged engagement, persistent observations, verification with the research supervisors, negative case analysis and progressive subjectivity, but not member checking.

4.12.2 Transferability

Transferability, or generalisability, states that study findings can be transferred to a similar setting, context or phenomenon (Creswell, 2013; Guba & Lincoln, 1989), otherwise known as 'fittingness' (Guba & Lincoln, 1989). Potential users can apply the transferability of the findings, but not the researchers (Guba & Lincoln, 1989; Sandelowski, 1986). Lincoln and Guba (1985, p. 316) stated that 'It is…not the naturalist's task to provide an index of transferability; it is his or her responsibility to provide the database that makes transferability judgments possible on the part of potential appliers'. In this study, transferability was the essence of the thick and rich descriptions of the elderly participants' perceptions to other settings, contexts or similar study phenomena.

4.12.3 Dependability

Dependability describes the consistency of findings over time, as well as confirmability with data coherence in relation to findings, data interpretations and recommendations (Denzin & Lincoln, 2011). In this study, the data dependability and confirmability of the findings were instituted using an audit trail and a peer review during the research process (Creswell, 2013; Guba & Lincoln, 1989).

An audit trail was implemented with the research supervisors to detect any biasness and inappropriate subjectivity in the review of the draft copies of the verbatim transcript, process of coding, categorising and data interpretation leading to emerging subthemes and themes (Holloway & Wheeler, 2010). In the current study, the thesis advisory committee, which consisted of two methodological experts, provided external audits to members during regular meetings in relation to the review of the coding, categorising, subthemes and themes. The external auditors reviewed whether the findings and interpretations were supported by the data.

Similarly, a peer review was conducted with the research supervisors and thesis advisory committee members during regular meetings to detect any biasness and inappropriate subjectivity (Holloway & Wheeler, 2010). The coding was created based on the verbatim transcript, which was reviewed for language that was close to the participants' own words rather than the researcher's medical or technical terms to ensure that the language stayed close to the data.

There was an initial categorisation of three phases—preoperative, intraoperative and postoperative—to organise the coding. After the peer review, it was found to be more meaningful to create multiple categories and subcategories that depicted participants' experiences rather the medical-oriented three phases. Examples of the category and subcategories created using NVivo 9 (QSR International, 2014) are 'life after operation' (category)

and ‘going back to work’, ‘gaining independence’ and ‘going back to social activities’ (subcategories).

The ongoing and dynamic peer review of the categories and subcategories ensured that the interpretation was true and reflective of the participants’ descriptions of their perioperative experiences. The external auditors provided valuable feedback to the researcher to ensure consistent in-depth data analysis and positive construction of emerging subthemes and themes. Dependability ensured consistency, accuracy and stability of findings and data coherence (Denzin & Lincoln, 2011) for the focus of this study in exploring the perceptions of elderly patients undergoing joint replacement surgery.

4.12.4 Confirmability

Confirmability describes the objectivity of the data, interpretations and findings being consistent within the context of the study, rather than subjective interpretations of the researcher (Guba & Lincoln, 1989). In this study, an audit trail of the complete process of documentation provided confirmability of the findings. This audit trail clearly illustrated the evidence, transition of discussions and thought processes of the research team and thesis advisory committee in confirming the consistent data findings and interpretations. Sandelowski (1998) posited that researchers who conduct data collection and are consistently immersed with the data can better confirm the findings of their study. During the discussions with the research team and the thesis advisory committee, the researcher described the storied lives using the thematic map (see Table 5.2) of the participants to obtain confirmation of the need to modify coding, categorisation, subthemes and themes to ensure accurate representations and interpretations of the findings.

4.12.5 Reflexivity

Reflexivity is a central element of qualitative research (Fontana, 2004), as it closely relates to the researcher’s conscious or subconscious depth of

immersion and level of influence on the data interpretations and findings. Nurse researchers often know the participants well during the course of their research study (Jootun, McGhee & Marland, 2009). Reflexivity is an internal process whereby researchers reflect on their role as they build close relationships with the participants during their interviews. Researchers can identify participants' experiences, feelings and concerns that shape or influence the researchers' interpretations of the data (Jootun et al., 2009). Primeau (2003) stated that: 'Reflexivity enhances the quality of research findings through its ability to extend our understanding of how our positions and interest as researchers affect all stages of the research process' (p. 10).

In this study, reflexivity was employed when the researcher could relate to the elderly participants whom she came to know personally during the course of the interviews. The reflexivity was closely influenced by the presuppositions from the researcher's personal experiences of friends and family members who had severe knee osteoarthritis and who had undergone joint replacement surgery. Further, the researcher was influenced by her professional experience of working in the operating theatre and her academic teaching of the Advanced Diploma in Nursing for both perioperative and perianaesthesia specialities. The researcher made a deliberate and conscious effort to let the the participants' story speak for itself and not to be influenced by her clinical and professional experiences. It was critical that the researcher stayed close to the data to avoid making personal assumptions and ensuring that data interpretation was based as much as possible as participants' own voices. The researcher kept a field diary to record and track her feelings, reflections, thoughts, observations and interpretations of the 14 participants during the research process. This record demonstrated a deliberate effort to suspend any personal bias, thereby increasing the rigor, or trustworthiness, of this study.

4.13 Summary

This chapter described the methodological structure and justification of selecting the qualitative descriptive approach and research questions. The

sampling approach, development of repeated interview guides, ethical considerations and data collection approach were further outlined. The pilot study and its subsequent evaluation were then highlighted. Further, this chapter outlined the data management of the repeated interviews, the modified thematic analysis of the repeated interviews and how data saturation was achieved. Lastly, the criteria of credibility, transferability, dependability, confirmability and reflexivity of this research study were described and applied.

Chapter 5: Findings and Discussion I

5.1 Introduction

Chapters 5 and 6 present findings with comparisons with the relevant literature in the light of the key research questions. This chapter begins with an overview of the participants' demographics and relevant health history. This is followed by a summary table depicting the three critical phases of 'beginning of pain' (preoperative), 'finding a solution' (intraoperative) and 'recovering' (postoperative). This chapter focusses on the phases of 'beginning of pain' (preoperative) and 'finding solution' (intraoperative). This chapter further continues with an outline of the entire study's themes and subthemes from all repeated interviews of the participants' perioperative journeys of undergoing joint replacement surgery.

The primary aim of this study was to explore the perceptions of elderly Singaporeans undergoing joint replacement surgery. The secondary aim was to examine how elderly Singaporeans adjusted mentally and socially before, during and after undergoing joint replacement surgery.

The following findings and discussions address these research questions:

1. How do cultural values inform the perceptions of elderly Singaporeans undergoing joint replacement surgery?
2. How do personal beliefs inform the perceptions of elderly Singaporeans undergoing joint replacement surgery?
3. What is the nature of the mental adjustments of elderly Singaporeans undergoing joint replacement surgery?
4. What is the nature of the social adjustments of elderly Singaporeans undergoing joint replacement surgery?
5. How do elderly Singaporeans cope when undergoing joint replacement surgery?

5.2 Introduction to Participants' Demographics and Health History

This section presents the demographics (see Figure 5.1 and Figure 5.2) and relevant health history (see Figure 5.3) and introduction to the 14 participants. Each participant was assigned a fictitious name and pseudonym depicting their gender, ethnicity, participant number and age in order to maintain anonymity in the report of the findings from their interviews. For example, MM1-70 denotes male, Malay, participant number 1, 70 years old; MC2-78 is male, Chinese, participant number 2, 78 years old; ML4-67 denotes male, Sri Lankan, participant number 4, 67 years old; and FS7-76 denotes female, Caucasian, participant number 7, 76 years old. Each participant was assigned a fictitious name that could closely identify the ethnic group. For example, Oman MM1-70 is a Malay and Kate FS7-76 is a Caucasian. The ethnic composition of the participants was one Malay (7 per cent), one Sri Lankan (7 per cent), one Caucasian (7 per cent) and 11 Chinese (79 per cent) (see Figure 5.1)

Demographic	**Male (n=10)**	**Female (n=4)**	**Total (N=14)**
Mean age, in years (SD) Range in years of age	64.6 (5.4) 66-83	68 (5.4) 65-76	71.6 (5.4) 65-83
Race, n (%) Sri Lankan Malay Chinese	 1 (10) 1 (10) 8 (80)	 0 0 3 (75)	 1 (7.1) 1 (7.1) 11 (78.7)
Caucasian	0	1 (25%)	1 (7.1)
Marital Status, n (%) Married Widow	 10 (100%) 0	 3 (75) 1 (25)	 13 (92.9%) 1 (7.1)

Figure 5.1: Demographics of participants

Participant	Pseudonym	Marital status	Staying with	Caregiver
1	Oman MM1-70	Married	Spouse and son	Wife
2	Huay MC2-78	Married	Spouse, daughter, maid	Spouse, maid
3	Leng MC3-83	Married	Spouse, son and family, maid	Spouse, maid
4	Panu ML4-67	Married	Spouse	Spouse, maid
5	Ngian MC5-66	Married	Spouse, daughter, son	Spouse
6	Lim MC6-72	Married	Spouse	Spouse
7	Kate FS7-76	Widow	Maid (spouse deceased; children living abroad)	Maid
8	Hin MC8-71	Married	Spouse, son	Spouse
9	Boo MC9-66	Married	Spouse, daughter	Spouse
10	Niu MC10-73	Married	Spouse, son	Spouse
11	Lian FC11-72	Married	Spouse	Spouse
12	Sui FC12-65	Married	Spouse and sons	Spouse
13	Mien FC13-66	Married	Spouse, son and family	Spouse
14	Hua FC14-65	Married	Spouse, son, maid	Maid

Figure 5.2: Marital status, 'Staying With' and Caregivers of participants

There were four female and 10 male participants, with ages ranging from 65 to 83 years old. Their occupations varied widely, with five participants still working and nine participants who were retirees during the interview period. Educational qualifications varied from primary school, secondary or 'O' level, degree and postgraduate levels (see Table 5.3). All participants were married and lived with their spouses, children and home helpers, except for one female participant who was widowed. Home helpers are 'maids' who provide substantial household support for the family. All participants were married and were either living with spouses (Panu ML4-67, Lim MC6-72, Lian FC11-72, Sui FC12-65), spouses and family members (Oman MM1-70, Ngian MC5-66, Hin MC8-71, Boo MC9-66, Niu MC10-73, Mien FC13-66) spouses, family members and a maid (Huay MC2-78, Leng MC3-83, Hua FC14-65) or a maid (Kate FS7-76) (see Figure 5.3).

Participant	Pseudonym	Ethnic group	Age	Gender	Occupation	Educational Qualification	Operation	Time since diagnosis (years)	Preoperative Waiting Period (m-months/w-week)	Type of Anaesthesia	Analgesia
1	Oman MM1-70	Malay	70	Male	Part time Taxi driver	Secondary	Left TKR	1	0.5 m	RA	Pain Buster, Patient Controlled Analgesia with Morphine
2	Huay MC2-78	Chinese	78	Male	General Manager	Diploma	Right TKR	8	3 m and 1 w	GA	Oral Analgesia/Intra muscular Pethidine
3	Leng MC3-83	Chinese	83	Male	Retired Aircraft Engineer	Degree	Right TKR	4	1 m	RA	Panadol, Tramadol, Arcoxia
4	Panu ML4-67	Sri Lankan	67	Male	Chief operating officer	Degree	Left TKR	1	1.5 m	RA	Oral Analgesia/Morphine Infusion
5	Ngian MC5-66	Chinese	66	Male	Retired storekeeper	Diploma	Left TKR	10	5 m	RA	Oral Analgesia/Patient Controlled Analgesia with Morphine
6	Lim MC6-72	Chinese	72	Male	Retired customer service manager	Diploma	Left TKR	8	2 m	RA	Morphine Infusion
7	Kate FS7-76	Caucasian	76	Female	Retired Doctor	Postgraduate	Right THR	3	2 m	RA	Oral Analgesia, Patient Controlled Analgesia with Morphine
8	Hin MC8-71	Chinese	71	Male	Retired ship Engineer	Postgraduate	Left TKR	4	2 m	RA	Oral Analgesia, Pethidine 50 mg

Figure 5.3: Participants' Demographics and Relevant Health History

Two participants underwent THR and 12 underwent TKR, and they were diagnosed with hip or knee osteoarthritis 1–10 years ago. The average waiting time for surgery ranged from half a month to six months. All participants underwent SDS, where they were admitted on the day of their surgery, except for Boo MC9-66, who was admitted one day prior to surgery for PAT. All participants underwent regional anaesthesia during their joint replacement surgery, except for two participants, who underwent general anaesthesia. Each participant was given different postoperative analgesia that was administered after surgery, such as PainBuster (automated titrated morphine attached directly to the operative site), oral analgesia (Panadol, Arcoxia, Naproxsyn) or PCA of titrated morphine (see Figure 5.3).

Figure 5.2 and 5.3 presents a summary of the details of the 14 participants' marital status, living arrangements, waiting time for surgery, medication and pain management, day of discharge, and mobility status during the first and second interviews, as well as the location of each interview.

Table 5.1: Introduction to participants

Participant #1: Oman MM1-70 Left TKR
Oman was a 70-year-old Malay male who worked as a part-time taxi-driver with a secondary school education. He lived with his wife and son. He was a thrifty person who preferred to be in control of his family's finances. He was alert and had a vivid memory of his experience undergoing joint replacement surgery. He was diagnosed with left knee osteoarthritis one year ago. The waiting time for Left TKR was a short 0.5 months, as it was performed during the Chinese Lunar New Year, when it is taboo for Chinese patients to be scheduled any elective surgery. He was placed on PainBuster pump and PCA (morphine) after surgery under regional anaesthesia. He was discharged on the fifth postoperative day. He was using a walking frame during the first interview on the sixth postoperative day, but he was walking unaided during the second interview on the 47th postoperative day. Both interviews were held in the comfort of his home.
Participant #2: Huay MC2-78 Right TKR
Huay was a 78-year-old Chinese male who worked as a general manager with a Diploma qualification. He lived with his wife, daughter and maid. He appeared tensed and stern during the initial period, but became more relaxed during the first interview. He had a vivid memory of his surgical experience of joint replacement surgery. He was diagnosed with right knee osteoarthritis eight years ago. The waiting time for Right TKR was three months and one week. He was on oral analgesia and intramuscular pethidine after surgery under general anaesthesia. He was discharged on the sixth postoperative day. He was using a walking stick during both interviews. The first interview was held on the 10th postoperative day, and the second interview was held on the 35th postoperative day. Both interviews were held in the comfort of his home.
Participant #3: Leng MC3-83 Right TKR
Leng was a male, 83-year-old Chinese retired aircraft engineer with a degree qualification. He lived with his wife, son, daughter-in-law, two grandsons and maid. He appeared relaxed throughout the interviews. He had a vivid memory of his surgical experience of joint replacement surgery. He was diagnosed with right knee osteoarthritis four years ago. The waiting time for Right TKR was

one month. He was on oral analgesia Panadol, Tramadol and Arcoxia after surgery under regional anaesthesia. He was discharged on the third postoperative day. He used a walking stick during the first interview, which was held on the fifth postoperative day. The second interview was held on the 31st postoperative day. Both interviews were held in the comfort of his home.

Participant #4: Panu ML4-67Left TKR

Panu was a male, 67-year-old, Sri Lankan Chief Operating Officer with a degree qualification. He lived with his wife. A maid who was employed by his daughter was brought by his daughter over to the house in the morning on a daily basis to help around the house other than taking care of the two grandchildren. He appeared relaxed throughout the interviews but apologised that he had to elevate his left swollen leg on a chair. He had a vivid memory of his surgical experience of joint replacement surgery. He was diagnosed with left knee osteoarthritis a year ago. He underwent left knee arthroscopy one year ago. The waiting time for Left TKR was one and a half months. He was on oral analgesia and PCA (morphine) after surgery under regional anaesthesia. He was discharged on the fourth postoperative day. He used a walking stick during the first interview, which was held on the sixth postoperative day. The second interview was held on the 21st postoperative day. Both interviews were held in the comfort of his home.

Participant #5: Ngian MC5-66 Right TKR

Ngian was a 66-year-old male Chinese retired storekeeper with a diploma qualification. He lived with his wife, son and daughter. He appeared relaxed and chirpy throughout the interviews but apologised that he had to elevate his left swollen leg on a chair. He had a vivid memory of his surgical experience of joint replacement surgery. He was diagnosed with left knee osteoarthritis one year ago. He underwent nephrectomy and herniarraphy some years ago. The waiting time for Right TKR was five months. He was on oral analgesia and PCA (morphine) after surgery under regional anaesthesia. He was discharged on the fourth postoperative day. He did not use a walking stick during either interview. The first interview was held on the eighth postoperative day, and the second interview was held on the 37th postoperative day. Both interviews were held in the comfort of his home.

Participant #6: Lim MC6-72 Left TKR
Lim was a 72-year-old male Chinese retired customer service manager with a diploma qualification. He lived with his wife. He appeared relaxed and chirpy throughout the interviews. He had a vivid memory of his surgical experience of joint replacement surgery. He was diagnosed with bilateral osteoarthritis eight years ago. He underwent Right TKR one year ago. The waiting time for Left TKR was two months. He was on PCA (morphine) after surgery under regional anaesthesia. He was discharged on the fourth postoperative day. He did not use a walking stick during either interview. The first interview was held on the sixth postoperative day, and the second interview was held on the 39th postoperative day. Both interviews were held in the comfort of his home.
Participant #7: Kate FS7-76 Right THR
Kate was a 76-year-old widowed Caucasian female, retired anaesthetist with a postgraduate qualification. She lived alone with her maid, as her spouse passed away eight years ago. Her children were married and stayed in England. She appeared a bit flustered when I approached her at the ward, as she was waiting for assistance to get out of bed in preparation for the interview. She had a vivid memory of her surgical experience of joint replacement surgery. She was diagnosed with right hip osteoarthritis one year ago. She underwent several surgeries: decompression laminectomy one year ago, repair of incisional hernia five years ago, dilatation and curettage for fibroid 10 years ago and nasal septoplasty 11 years ago. The waiting time for Right THR was two months. She was on PCA (morphine) after surgery under regional anaesthesia. She was discharged on the seventh postoperative day. She used her rollator to move around during both interviews. The first interview was held on the sixth postoperative day at the hospital Day Room, and the second interview was held on the 38th postoperative day at her home. She showed the wound infection at the incision of the right hip and was on follow-up for wound cleansing at a nearby polyclinic.
Participant #8: Hin MC8-71 Left TKR
Hin was a male, 71-year-old Chinese retired ship engineer with a postgraduate qualification. He lived with his wife. He appeared relaxed throughout the interviews. He had a vivid memory of his surgical experience of joint

replacement surgery. He was diagnosed with left knee osteoarthritis four years ago. He underwent Right TKR 12 years ago. The waiting time for Left TKR was two months. He was on oral analgesia and intramuscular pethidine after surgery under regional anaesthesia. He was discharged on the second postoperative day. He used a walking stick during both interviews. The first interview was held on the seventh postoperative day, and the second interview was held on the 32nd postoperative day. Both interviews were held in the comfort of his home. He had a wound infection over the surgical incision, which was on follow-up at a polyclinic. He was readmitted three weeks after the day of discharge because of a surgical wound infection, and he stayed for one day in the hospital. He visited the Accident and Emergency department when his infected wound did not recover despite visits to the polyclinic for wound cleansing.

Participant #9: Boo MC9-66 Left TKR

Boo was a 66-year-old, Chinese male musician with secondary school education. He lived in China and travelled around randomly with his music troupe within China. He lived with his wife and two daughters locally after his discharge from hospital. He appeared tense and suspicious of the researcher during the initial part of the first interview, but he was more relaxed not long after the interview started. He had a vivid memory of his surgical experience of joint replacement surgery. He was diagnosed with left knee osteoarthritis five years ago. He underwent Right TKR six years ago. The waiting time for Left TKR was only one week. He was admitted one day before surgery to complete the preadmission testing. He was on oral analgesia and intramuscular pethidine after surgery under regional anaesthesia. He was discharged on the third postoperative day. He used a walking stick during both interviews. The first interview was held on the eighth postoperative day, and the second interview was held on the 47th postoperative day. Both interviews were held in the comfort of his home.

Participant #10: Niu MC10-73 Left THR

Niu was a 73-year-old Chinese male retired biochemist with a postgraduate qualification. He lived with his wife. He appeared settled on a high armchair with his left leg elevated on another chair during both interviews. He had a

vivid memory of his surgical experience of joint replacement surgery. He was diagnosed with left hip osteoarthritis nine years ago. He tripped on the carpet and fell down when attending an overseas exhibition. The waiting time for Left TKR was two months. He was on oral analgesia and PCA (morphine) after surgery under general anaesthesia. He was discharged on the fourth postoperative day. He used a walking stick during both interviews. The first interview was held on the fifth postoperative day, and the second interview was held on the 26th postoperative day. Both interviews were held in the comfort of his home.

Participant #11: Lian FC11-72 Left TKR

Lian was a 72-year-old Chinese female part-time sales promoter with a primary school education. She lived with her retired spouse and had no children. She appeared anxious during the initial part of the first interview, but was then more relaxed throughout the interviews. She had a vivid memory of her surgical experience of joint replacement surgery. She was diagnosed with left knee osteoarthritis five years ago. She underwent right cataract surgery three months ago, was diagnosed with lymphoma one year ago and underwent successful radiotherapy. The waiting time for Left TKR was six months. She was on oral analgesia after surgery under regional anaesthesia. She was discharged to a community hospital on the fifth postoperative day, as requested, for rehabilitation and recuperation at the community hospital. She was pushed in a wheelchair to the hospital Day Room during the first interview and did not use a walking stick during the second interview. The first interview was held on the fourth postoperative day, and the second interview was held on the 34th postoperative day. The second interview was held in the comfort of her home.

Participant #12: Sui FC12-65 Right TKR

Sui was a 65-year-old female Chinese retired school teacher with a secondary school education. She lived with her spouse and two sons. She was apprehensive during the initial part of the first interview, but became more relaxed throughout the interviews. She had a vivid memory of her surgical experience of joint replacement surgery. She was diagnosed with right knee osteoarthritis five years ago. The waiting time for Right TKR was seven

weeks. She was on oral analgesia and intramuscular pethidine after surgery under regional anaesthesia. She was discharged on the eighth postoperative day. She was pushed in a wheelchair to the hospital Day Room during the first interview and did not use a walking stick during the second interview. The first interview was held on the fifth postoperative day, and the second interview was held on the 48th postoperative day. The second interview was held at the community centre as her choice of interview location.

Participant #13: Mien FC13-66 Left TKR

Mien FC13-66 was a 66-year-old female Chinese retired clinic assistant with a primary school education. She lived with her spouse, son and daughter-in-law. She appeared anxious during the initial part of the first interview, but was more relaxed throughout the interviews. She had a vivid memory of her surgical experience of joint replacement surgery. She had right TKR five years ago and was diagnosed with left knee osteoarthritis five years ago. The waiting time for her current Left TKR was three months. She was on oral analgesia and intramuscular pethidine after surgery under regional anaesthesia. She was discharged on the fourth postoperative day. During the first interview, she was pushed in a wheelchair to the hospital Day Room, and she did not use a walking stick during the second interview. The first interview was held on the fourth postoperative day, and the second interview was held on the 34th postoperative day. The second interview was held in the comfort of her home. Mien needed prompting during the interview because she was generally less expressive.

Participant #14: Hua FC14-65 Left TKR

Hua was a 65-year-old female Chinese retired manager with a degree qualification. She lived with her spouse, son and maid. She appeared calm and relaxed throughout the interviews, but her mind wandered off at times, possibly thinking of her many tasks at hand, as she was used to running the household singlehandedly. She had a vivid memory of her surgical experience of joint replacement surgery. She had a laminectomy 20 years ago. She was diagnosed with left knee osteoarthritis one year ago. The waiting time for her current Left TKR was one and a half months. She was on oral analgesia and PCA (morphine) after surgery under regional anaesthesia. She was discharged

on the fourth postoperative day. She used a walking stick during the first interview only, which was held on the fourth postoperative day. The second interview was held on the 21st postoperative day. Both interviews were held in the comfort of her home.

The transcripts of both the first and second interview of the third participant, Leng MC3-83 who underwent right total knee replacement surgery and Kate FS7-76 Right Total Hip Replacement are presented in Appendix 5.1 and 5.2. The first and second interviews of Leng MC3-83 were conducted on the fifth and thirty first postoperative days. The first and second interviews of Kate FS7-76 were conducted on the sixth and thirty eighth postoperative days respectively.

The next section describes the findings of the 'beginning of pain' phase, where the participants began their perioperative journey.

5.3 Beginning of Pain

The first phase of the perioperative journey was described as the 'beginning of pain'. The preoperative phase encompassed the collective experiences from the time that the participants were diagnosed with knee or hip osteoarthritis, as all participants closely related their preoperative experiences from the time the doctor informed them of their osteoarthritis diagnosis. The findings in this section reflect the initial experiences of the elderly participants who had hip or knee osteoarthritis before undergoing joint replacement surgery. It describes their initial journey of experiencing pain and disability in a deteriorating body, which affected their daily activities and limited their mobility. As the participants experienced persistent pain and disability, they gathered various information sources on THR or TKR surgery when making their decision to undergo surgery. During the waiting period for surgery, the participants expressed fear, anxiety and uncertainty in anticipation of their surgery. They testified to undergoing preoperative assessments and receiving information from health professionals to better prepare them for the day of surgery. In the

phase ‘beginning of pain’, the participants coped with the trajectory of chronic illness of severe knee or hip osteoarthritis using various coping strategies.

Table 5.2: Summary of phases, themes and subthemes—Overarching theme: 'Journey to regain life'

PHASES	Beginning of pain				Finding a solution	Recovering		
	Onset of osteoarthritis to preoperative period				During surgery	Transfer to post anaesthesia care unit till recovery from surgery		
THEMES	**A deteriorating, disabled and limiting body wanting a functioning abled body**	**Gathering information to decide on surgery**	**Living in fear, anxiety and uncertainty in anticipation of surgery**	**Receiving information in preparation for surgery**	**Detachment from the body**	**Adapting to an unfamiliar body**	**Cultural beliefs / practice on the recovering body**	**Adjusting to a new body and life again**
SUBTHEMES	Enduring pain and limiting body	Positive influence	Fear and anxiety		Awareness of operation-related sounds and scenes	Experiencing problems related to surgery	Yin-Yang of foods for the recovering body	Getting the body to be in charge again
	Awareness of self-image	Negative influence	Drawing peace of mind and inner strength from faith and religion		Feelings of physical detachment from the body	Discovering possibilities and limitations to own body		Adaptation to life with new leg
	A hope to regain life		Drawing from past experiences					Appreciative of support from informal carers
	Placing hope on complementary therapy		Entrusting the outcome of surgery to formal carers					Togetherness with family members and friends
	Fear over side-effects of painkillers							Encouraging others to undergo surgery

Some participants testified to being increasingly reliant on stronger painkillers, dependent on walking aids at home and during social activities, refraining from work or seeking early retirement from work, and actively seeking cure and relief from complementary therapies to cope with their deteriorating condition. Although there was some reliance on stronger painkillers, other participants held strong personal beliefs that painkillers should only be consumed when the pain became unbearable, as they were wary of becoming dependent on the painkillers.

The participants underwent a process of mental and social readjustment in which they had to readapt to their activities and lives due to the inevitable limiting pain and disability. Faced with the dependency on walking aids at home, such as walking sticks and wheelchairs during travelling, the participants persisted with their mobility. The traits of mental and social resilience, and readjustment were inherent in the participants' cultural values; it positively related to a sense of rootedness and independence among elderly Singaporeans. In Singapore, successful aging has been cited as a mechanism of the state to promote a cohesive and resilient society where all levels of society (individual, family, community and government) are prepared for the aging population and challenges ahead (Kau, Jung, Tambyah & Tan, 2004). This theme corresponded with the central tenets of the CCM (Wagner, 1998) and SCT (Bandura, 1997) with the inherent element of self-management support, where the participants strove for independence despite their limiting pain and disability. Some participants' health-seeking behaviours of alluding to complementary therapy to seek cure and relief for their chronic illness demonstrated their cultural values and personal beliefs. Based on cultural values, some of the Chinese participants sought various Traditional Chinese Medicine (TCM) treatments over months or years, while others held firm to their personal beliefs in Western medicine to provide a cure.

In addition, the personal feelings of stigma over one's awkward posture and gait in the public area drew different behavioural responses and coping strategies. The female participants testified that they consciously camouflaged their dressing to make their disability less conspicuous in the public area. In

contrast, the male participants did not feel embarrassed or bothered with stares received from the public. The participants' personal beliefs depicted their awareness of their self-image in public. In line with SCT (Bandura, 1997), participants drew upon valuable lessons from past experiences of joint replacement surgery, as they attached values to expectations and anticipated outcomes of the subsequent surgery.

In relation to self-management, participants deliberated and eventually decided upon joint replacement surgery with support from their family members, community and health system because they hoped to regain their lives after surgery. Participants were faced with constant mental and social adjustments within the family and community because their lives and a myriad of social activities were limited by their debilitating pain and disability during the trajectory of their chronic illness.

In 'beginning of pain', four themes and 11 subthemes emerged to capture the perceptions of the perioperative experiences of elderly patients undergoing joint replacement surgery during this phase. The four themes were: 'a deteriorating, disabled and limiting body wanting a functioning, abled body'; 'gathering information to decide on surgery'; 'living in fear, anxiety and uncertainty in anticipation of surgery'; and 'receiving information'. Each theme was further categorised into subthemes, which are described in the following sections.

New codes and categories were explored throughout this chapter until no new codes/categories or recurring codes/categories were found during the process of data analysis. Data saturation was reached at the twelfth participant, and a further two participants were recruited and their verbatim transcripts were analysed to confirm data and theoretical saturation.

The following symbols have been used in the transcripts: an en dash (–) indicates a pause; an ellipsis (…) indicates the removal of text but does not alter the meaning; square brackets [ ] indicate the addition of text to enhance meaning.

5.3.1 A deteriorating, disabled and limiting body wanting a functioning abled body

All 14 elderly participants with osteoarthritis began to experience hip or knee pain that subsequently became aggravating and unbearable. Their deteriorating, disabled bodies limited their movements in independent living and social activities. The participants wanted to regain their functioning, abled bodies. Different strategies were used to manage the debilitating and aggravating pain, including taking stronger medications, using complementary therapies, and finally considering surgery. However, the participants feared the side-effects from pain medication.

In this theme, the associated subthemes of ‘enduring pain and limiting body’, ‘awareness of self-image’, ‘a hope to regain life’, ‘placing hope on complementary therapy’ and ‘fear of side-effects of painkillers’ are expanded in the following sections.

The next section outlines the data on the subtheme of ‘enduring pain and limiting body’, which depicts how the elderly participants endured pain and disability as they experienced their bodies deteriorating, further limiting the movements of their normal functioning bodies.

5.3.1.1 Enduring pain and limiting body

Participants began and continued to experience knee and hip pain, which could start gradually or suddenly. The pain at the knee and hip were described differently by each participant, but most agreed that the pain worsened and became unbearable over time. For some participants, the pain began to affect their activities of daily living (walking, moving outside the home, travelling and shopping), their mood (feeling depressed) and spirit (low) over the years. Some felt that their work increased the intensity of the pain. Participants used different methods of dealing with the continual and worsening knee pain. Some accepted it as part of their lives, but others requested stronger pain medications from their doctor.

The participants described different types of pain. A male Chinese participant experienced a 'needle-poking pain' that deterred him from carrying on what he was doing at that point in time. A musician named Boo described his pain experience:

> Pain is always there. Pain might occur any time, there is no signal given. Sometimes when…you can walk one bus stop. When the pain occurs…you know, I have to stop [walking] immediately because it was so painful. I get very frustrated every time when the [knee] pain occurs. Sometimes for a one or two minutes, especially when [it] is winter icy. When the weather is cold I think the pain is more. Especially, in China during winter time. The knee caps all you feel very painful…My left knee—the pain has been there for several years (five to six years after right knee operation). Penetrating…like needle poking in the bone, pulling, pinch[ing]…lasts about two to three seconds, then the pain goes off (Boo MC9-66).

Panu, a Sri Lankan Chief Operating Officer, described the worsening pain:

> It happened early August [last year]. It was a sudden. Next day gone…It was gradual, but the big change came overnight (Panu ML4-67).

Lian, a part-time Chinese sales promoter, described his pain:

> [My left knee has] throbbing pain there. Walked too long also, back of the [left] knee will ache. Some throbbing [pain]. But then if I move the knee and then put the pillow [to] elevate it at a certain angle, it goes off. It [knee pain] was on and off [for four years]. Very painful, *hen suan tong* (numb and dull pain) (Lian FC11-72).

For some participants, the knee pain affected their activities of daily living, time spent with their families, social outings and travelling. It took more time than usual for them to cope with certain activities, such as crossing a street and moving around.

Leng, a retired Chinese aircraft engineer, expressed his concern:

> I'm not very confident yet, travelling by bus. In fact, I prefer to travel by bus. On crossing [the] road, I've got to cross the road or go up to the bridge since there's no underground road. I dare not cross the road unless there's a traffic light. I dare not (Leng MC3-83).

Sui, a retired female teacher, expressed her struggles: 'Come to crossing the road, I almost fear that I will be…[knocked down]…because I walk so slowly. I was afraid the driver will be impatient. So, I really struggle to cross the road' (Sui FC12-65).

Panu expressed his constraints: 'I haven't been inside the shopping centre and cinema for eight months. I haven't been to restaurant of choice for…[so] long. You see the car park, we park next to it [eateries], whatever the nonsense is' (Panu ML4-67).

Ngian, a retired Chinese storekeeper, was sceptical on going out: 'It becomes…like if you go for outing, not very keen to go for long journey in walking' (Ngian MC5-66).

Leng shared his travelling woes:

> I travelled quite a bit. Thailand, Japan and other countries. I found that at that time the pain come on slowly and unbearable. I felt a little bit of pain creeping [into] the bone side, so I quickly took two Panadol. And I didn't feel anything (Leng MC3-83).

Sui expressed how the knee pain affected her moods: 'I felt a bit…depressed. I was quite depressed at one stage. Then I felt that…compared with people…I feel a bit low, low in spirit, everything' (Sui FC12-65).

Some participants also described that certain activities at work worsened their knee pain. Sui, a retired teacher, described the effects of work stress:

> Very, very painful—you know. I couldn't [bear it]…Because…I had a very noisy class, very naughty, the P3 [primary three] children. I was

> quite stressed up. I realised…when I [am] stressed up…the pain will…increase…The stress goes to the knee cap…Very pain[ful]. I hope this thing [pain] goes off as I…grow older (Sui FC12-65).

Boo described the effect of his work as a musician: 'I think that's what happened to my knee caps [stress on the knees due to playing drums] maybe. A lot of movement on both of my legs' (Boo MC9-66).

Upon experiencing knee pain, some participants used different methods of reducing the disturbing and worsening pain.

Huay, a general manager, found that using the left leg (non-affected) more than the right leg (affected) led to the worsening of his left leg:

> Because I have been trying to use less of the right [leg] and use more of other side [left], so the feeling has been going to the left [leg]. I am using the left more…also feel the strain. It happened in the earlier day …even before the operation. I think last time, because I tried to use more of the left, it becomes also affected. Even now I feel the front, at times I feel this part is not good (Huay MC2-78).

Niu, a retired Chinese biochemist, did not do much for his knee pain; he accepted it as part of his life: 'I think every day is the same, the pain. Because it's the pain, regular pain—I don't really regard it as special. It comes every day. It's like a routine, I just accept it. Nothing, I just…do nothing' (Niu MC10-73).

Some participants tried to reduce their persistent and worsening knee pain by seeking help from doctors at healthcare facilities. They requested stronger pain medications to cope with the pain.

Oman, a retired taxi driver, expressed his experience at the polyclinic:

> Nearly one year…Then I decided to go to poly [community clinic]. Then I saw the doctor in poly…[who] want[s] to give me Panadol. I say 'no, no way. Because I take…painkiller…Voltaren. Still pain', I

> said. The nurse [came back and said] [‘doctor] give[s] you this pill only once. You cannot take any more (Oman MM1-70).

Eventually, Lim, a retired Chinese customer service manager, decided to undergo surgery, as the pain was unbearable:

> …gradually my right knee become[s] worse. The pain starts to occur and that was 2010. I think…my left knee started to hurt before my right. Long ago, is about three years ago. And then some days…two years back, my right knee start to hurt a lot more. So I went for my right knee operation. Before the surgery, I think the pain…is with me all the time because I’m just trying to bear with it until I cannot…take it anymore. That’s why I go for the surgery (Lim MC6-72).

Sui found the pain so unbearable that she visited the Accident and Emergency (A&E) department: ‘[It] was very painful and unbearable. Until I went in March…to see the doctor—A&E…very serious’ (Sui FC12-65).

In this study, some elderly participants endured their persistent knee and hip pain, which considerably limited their movements. The participants described the nature of their pain as ‘poking’, ‘pulling’, ‘pinching’, ‘throbbing’, ‘numb’ and ‘dull’. Their descriptions of pain were consistent with the clinical presentations of knee and hip osteoarthritis that resulted from the pathological changes of chronic degenerative disorders of the knee and hip (Busija et al., 2010). In two quantitative studies conducted in the United States (Creamer, Lethbridge-Cejku & Hochberg, 1998) and the United Kingdom (Wood, Peat, Thomas & Duncan, 2007), participants who were mainly Caucasian with knee osteoarthritis and dwelling in the community described their pain as ‘troublesome’, ‘aching’, ‘hurting’, ‘nagging’ and ‘annoying’. In these studies, the age range of participants was 50–80 years (Wood et al., 2007) and 55–76 years (Creamer et al., 1998). Therefore, the expression of pain of elderly Singaporeans differed from Caucasian participants in studies conducted in United States (Creamer et al., 1998) and United Kingdom (Wood et al., 2007), where the pain descriptors were found to be different, and elderly Singaporeans were less expressive about their pain levels.

Pain and disability affected the lives of the elderly participants because it limited their activities of daily living, such as moving around, crossing the street, social outings with family members, travelling and work. There were similar findings in a qualitative study by Jacobson et al. (2008), where participants with knee osteoarthritis experienced fatigue and prolonged and exacerbated pain when they were involved in social outings.

The endurance of worsening pain and disability of the affected leg led to compensation and over-dependence on the non-affected leg. With further surgery delays, some participants experienced pain, disability and deterioration of the compensating leg over time. These findings agree with a Canadian study (Desmeules et al., 2010) that also found significant deterioration of the contralateral knee pain score when the participants (average age of 66 years) waited for more than 6–9 months and 12 months for their surgery in three local hospitals.

Undesirable pain experiences such as depression and low spirits affected the mind and body of the elderly participants. There were similar findings in a Japanese study by Fujita et al. (2006), where the majority of THR female participants aged 62 years experienced an inferiority complex and preferred to isolate themselves due to their pain and disability.

The next section describes the second subtheme of ‘awareness of self-image’, which depicts the elderly participants’ awareness of the glances and stares received from others regarding their limiting movement in the public area due to knee and hip pain.

5.3.1.2 Awareness of self-image

Some elderly participants with hip and knee pain faced difficulties moving around, especially outside their homes. Different walking aids (walking sticks, wheelchairs, rollators and electric trolleys) were used to facilitate their mobility. The participants were concerned and aware of people observing their

awkward walking and gait in public places. Different attitudes and concerns were experienced by various participants. Some participants received admiring glances and assistance from others, but some preferred to conceal their disabled body under long and loose garments. Some participants simply ignored or disregarded stares from the public, or they did not feel embarrassed.

Kate, a retired Caucasian doctor, was used to feeling odd in the 'sea of others', as she occupied much space pushing her rollator around:

> I am aware that…people noticed somebody is taking up more room [using the rollator]. I've being [feeling odd for] so long…an odd person in a sea of others. So that made me a bit more obvious and also this [rollator], I get many, many admiring glances for the rollator. I walk quite slowly using this [rollator]. And, so I…never feel very self-conscious about it all (Kate FS7-76).

Leng was aware of people watching him using his walking stick. He was thankful that some people gave up their seats to him when taking public transport, but he explained that he used a walking aid out of necessity, and not to attract attention and assistance:

> In fact, when I was using the [walking] stick, more people watched me. People will give me the seat and all that. But I'm not using that to get the seat. I am using the walking stick because it was very painful (Leng MC3-83).

Some participants expressed different attitudes towards the watchful eye of the public. Three male participants stated that they did not feel embarrassed, shy or ashamed of their 'sickness' or disability

Hin, a retired Chinese ship engineer, insisted that there was nothing to be ashamed about: 'Nothing to be ashamed of. Pain—or when you [have] sickness—nothing to be ashamed…' (Hin MC8-71).

Panu expressed that he was not bothered by others:

> [It] never came to my mind. Not me. Not me. Never in me to be shy or embarrassed about thing…If something given to me, I have to face up to it. I can't feel shy about it. That's it. I don't worry about these things…how I look to others never worried me (Panu ML4-67).

Leng shared his observations of elderly or older people in the United States:

> And over there [United States], they don't feel embarrassed either. There's a lot of old folks there they just borrowed that [electric trolley] and they ride around. And I don't feel embarrassed [with the disability of right knee pain moving around on electric trolley during the supermarket trip]. When I'm having the pain prior to my first operation, I went to US. I ask[ed] to [use electric trolley at]…the supermarket, those big, huge, giant hyper-supermart [to] ride around (Leng MC3-83).

Similarly, five male participants were not bothered by how others perceived them. Two participants believed that the walking difficulty was their personal issues and did not concern others. Huay, a Chinese general manager, said:

> I think I don't worry so much people [how] think of me, how people see it. You feel the need, you have to do it. I don't care whether…you know…whether you use the stick or wheelchair. Now I find a need [using the stick], I just don't care how people see me (Huay MC2-78).

Leng expressed his views of others:

> I couldn't care less how others perceive me. If they want to talk to me, I will talk to them. If you feel like talking to me, so be it! I'm happy with what I am. I don't depend on anyone. Not that I am proud. If I am independent, why should I 'kowtow' [pay obeisance] to you or 'booster' you up. If you are snobbish, you can go and 'fly kite' (Leng MC3-83).

Lim emphasised: 'I'm aware, but [it] doesn't bother me [how others look at me], you know' (Lim MC6-72).

Hin shared his feelings: ‘I don’t care what other people see. When they asked me, I said, “well, my knee pain”. That’s it. When you ask me why you limped, I said, “well, my knee pain”’ (Hin MC8-71).

Niu asserted his opinion: ‘I don’t really care how people see me. I mean this is the way I am. Whatever people want to think…that is their business, I don’t worry about that’ (Niu MC10-73).

Boo was unbothered:

> I just don’t bother about that. I live my life, it has nothing to do with them, whatever. Whatever I do, I’m happy, I don’t bother. Why I bother? I don’t bother about whatever people say. As long [as] I think I’m happy with it, I can do my things. I don’t bother what other people say (Boo MC9-66).

Another male Chinese participant, Ngian, chose to ignore the stares from others while using the walking aid (stick):

> Of course, when you wear shorts, people can observe that. The scar from far, can see. The age don’t match you see. If I have all the grey hair, look very old, I think [it] is okay. Stick umbrella…it’s very attractive…people will keep looking at you, but I don’t care. I want to secure [balance] myself only, no other meaning or I want people to give seat to me [on the bus]. I know if I fall, some problem [in the bus]. So, I ignored people looking at me. I know a lot of people looking at me (Ngian MC5-66).

Two female participants were more sensitive to negative perceptions and comments than male participants. They tried to conceal their walking gait with long and loose garments to reduce the many stares from the public. They even refrained from using walking aids in order to avoid appearing older than their age in public.

Hua, a retired Chinese manager, described her embarrassment:

> I got to wear long pants. Next time got a mark there, not nice already. I got no choice…Cannot wear like this [short pants], *sayang* [what a pity]! Even now, my age, I go out with…pants. So, when I go MRT station…come back by MRT [Mass Rapid Transit]…go up the MRT, people sure know that my leg got problem. People looked at me…One day…when I go to…my grandson's school, one old lady said, 'I see you from the back…your walking…I thought you are 70 plus. You're so young. Your leg…what happened?' People see me, 'I see you look so young but from behind I thought you are 70 years old' (Hua FC14-65).

Sui shared her concerns:

> I don't bother to wear properly. Normally, I want to wear nicely and go to teach. I wear heels…not too high and these sort of things. Not too high…even though…[it] is still painful. But after that, when I quit teaching already, I'll just wear a…loose pant, then…cannot see…the teacher limping. If possible, hide the limping. I didn't dressed up nicely. Very low in spirit…like that. Like…people with so many years…maybe…not 90, 80 years old. People will start to ask question, 'why [are] you carrying?' So I don't carry [walking aid]. No, I didn't, I didn't carry. Too vain to carry (Sui FC12-65).

Thus, in this study, some participants were aware of stares from other people, while others had a different attitude. In particular, some participants testified to not being bothered, but others felt embarrassed and tried to hide their disabled and limited bodies from public scrutiny. Only two out of the four female participants were particularly aware of their self-image as perceived by others. All male participants and two of the female participants testified to being unperturbed and "not bothered" by how others perceived their disability and usage of walking sticks, both at work and in public places. These participants tended to accept their appearance resulting from their debilitating pain and disability. There appeared to be an engendered perception, as only the female participants expressed awareness of self-image and tried to conceal their disability and limping gait at work and in public places.

In relation to awareness of self-image, a qualitative study conducted in the United Kingdom by Parsons et al. (2009) reached a different conclusion. Participants awaiting THRs or TKRs (three females and three males), and who were aged over 60 years, experienced negative thoughts relating to their personal body image. These participants also felt inadequate and incapable of being independent when they received stares while using the walking stick in public, and this led to reduced confidence levels regarding outdoor mobility. The change in posture with increasing physical disability was a central concern for patients who experienced severe osteoarthritis when attempts to camouflage their disfigurement proved futile (Jolly, 2012, p. 351). Self-consciousness, a loss of pride and a fear of losing independence were some of the reported barriers that deterred patients from accepting assistive devices such as walking stick despite having improved mobility with their usage (Jolly, 2012, p. 351). In relation to gender differences in the public's perception, a Japanese study on THR participants (mean age of 62 years) found that female participants expressed a sense of inferiority and preferred to be home-bound when told of their limping gait at work (Fujita et al., 2006).

Culturally, the elderly female participants demonstrated similar patterns of social behaviour of isolating and shunning themselves from work and public places because of feelings of embarrassment and inferiority. The participants' self-awareness and constant struggle with their disability, limping gait and usage of walking sticks at work and in public places was a constant reminder of their disabled disposition, particularly for female participants.

The next section describes the third subtheme of 'a hope to regain life', which depicts the elderly participants wanting to regain their lives by returning to their social activities, travelling and work.

5.3.1.3 A hope to regain life

Participants hoped to regain their lives by returning to sport, travelling, dancing, working, studying and other activities that they enjoyed before they experienced pain and disability from their knee and hip pain.

Four Chinese participants felt the need to bear the pain of surgery in exchange for the hope of a normal and better life after surgery. They realised that they needed to have surgery to fulfil their dream of returning to their sporting, travelling and dancing activities, which they had not done for a long time because of their pain and disability.

Boo expressed his plan: 'If they can bear the pain…want a better life or whatever it is, I think the best is to go for surgery' (Boo MC9-66).

Sui expressed hope: 'I want to go back to normal, as normal as possible' (Sui FC12-65).

Lim expressed hope with surgery: 'That's what I want, to go back active sport, active travelling, that kind of thing. That'll…be influenced [by] the decision to go for operation' (Lim MC6-72).

Leng expressed his hope to dance: 'After doing one leg, I may want to do another leg. Then, I can go dancing. I do not know. My wife said, "the first thing to do when you can walk is to take me dancing. Dancing exercises"' (Leng MC3-83).

Four Chinese participants wanted to return to work or study after surgery. As they were home-bound because of their pain and disability, they found life meaningless and boring. They wanted to return to work as a relief teacher, clinic assistant, sales promoter and musician so they could earn an income.

Lian was hopeful to get back to work: '*Zhen tian* [whole day] stay at home. *Shi mei yu yong te* [pointless staying at home whole day]. *Wo hen xi huan zuo*

gong, geng xi huan du shu [I love to work and even more so to study]' (Lian FC11-72).

Mien, a Chinese clinic assistant, wanted to go back to work: 'After three months, I will go back and work. I have to go back to work. Stay at home very boring and still can have some salary' (Mien FC13-66).

Boo expressed his hopes of work: 'Because in Singapore, you can't get much work in Singapore. If I can work there, I can carry on. Until…I can't really work, I can't play [drumming] anymore or whatever. I don't think I'll retire' (Boo MC9-66).

Boo felt strongly about going back to work: 'Because I told them [music troupe], maybe it takes about two or three months for my leg…everything healed. They are family men, so they need to survive' (Boo MC9-66).

Sui expressed her hope to teach again:

> I may take another few more months to fully recover and gain full confidence…going out on my own. My friends are encouraging me to go back to join relief teaching again. I said 'I try to, maybe next year' (Sui FC12-65).

In this study, participants demonstrated a strong desire to regain their lives by returning to their usual activities after surgery, such as travelling, work, study and social activities. Their sense of purpose and fulfilment in life was lost when they were home-bound and unable to move freely because of their pain and disability. Participants dreamed of a functioning, abled body as they experienced their deteriorating, disabled and limiting body. The hope to regain their lives motivated the participants to decide on joint replacement surgery to give meaning to their lives again.

These findings were echoed by two qualitative studies (Fielden, Scott & Horne, 2003; Gustafsson et al., 2007) on TKR and THR surgery. The study participants hoped to return to active social activities such as cycling,

canoeing, driving, dancing, scaling ladders and assuming caring roles for family members. Participants dreamt of restoring their bodies to their 'golden years', where they could move freely, be involved in activities and be devoid of pain-filled thoughts (Gustafsson et al., 2007). In this study, the participants expressed hope of regaining their lives they had before acquiring severe osteoarthritis. They pinned their hopes and expectations on getting their lives restored to the level of functionality as before they were inflicted with osteoarthritis in a couple of months after surgery. The participants underwent a constant transition of mental and social adjustments in coping with the debilitating pain of severe osteoarthritis as they pinned hopes of gaining back their physical functionality.

The next section describes the third subtheme of 'placing hope on complementary therapy', which depicts how the elderly participants place hope on complementary therapies to alleviate their hip or knee pain.

5.3.1.4 Placing hope on complementary therapy

Some participants placed hope on a variety of complementary therapies to seek relief and a cure from their hip and knee pain. The majority of Chinese participants sought treatments from multiple Chinese *Sinseh* or TCM practitioners using herbal remedies, *Tui Na* (manipulative therapy), acupuncture and various medicated sprays and plasters. These treatments only accorded temporal relief for the pain and disability. Other complementary therapies, such as music and chanting, were used to distract the mind and body and provide pain relief.

Tui Na (manipulative therapy) is a physical therapy that uses hand movements on the body with a sequence of manoeuvres or pressing, tapping and kneading with palms, fingertips and knuckles to remove the inertia along the body's meridians to stimulate the flow of energy or *qi* and blood circulation to promote inner healing (Tan Tock Seng Hospital, 2014).

Some Chinese participants sought pain relief of their hip and knee pain from complementary therapies, such as TCM herbal remedies—for example, *Ling Zhi* (*Ganoderma lucidum*) and *Du Zhong* (*Eucommia ulmoides*)—to stimulate the body's system, reduce blood pressure and back pain, as well as *Tui Na*, medicated spray and plaster. However, these remedies gave temporal and minimal pain relief. One participant regretted seeking a cure using TCM herbalism, as it delayed his decision to have hip surgery.

Ling Zhi (*G. lucidum*) is a popular medicinal mushroom that contains anti-inflammatory properties (Sliva, 2006). *Du Zhong* (*E. ulmoides*) is another medicinal herb that is used to nourish the kidney and reinforce the 'yang' effect of the body (He et al., 2014). Both herbs are widely used in TCM.

Leng shared the treatments he used to reduce his pain:

> I tried all sorts of sprays. I found that the Chinese spray is not bad. When I was in China, I told them I have this pain. It has some 'deer' mixture in it. I have only one bottle, so I used it very sparingly. Quite effective. It cools down. It has menthol, I think. So it cools down a bit. I used Salonpas (medicated plaster) occasionally. I know that was for stronger pain. That set me thinking that is actually a slight painkiller, so it doesn't give permanent relief (Leng MC3-83).

Niu described his experience with TCM:

> I was probably ignorant not to have this [hip surgery] done earlier and I was hoping that the *Ling Zhi* can help. *Du Zhong* is to reduce blood pressure, second is to reduce back pain. *Ling Zhi* is actually to strengthen the system [and prevent] degeneration. *Ling Zhi* is supposed to stimulate your body system and…I thought—well, maybe—I just take these and see what happen[s] (Niu MC10-73).

Niu was disappointed with TCM:

> I feel not much effect [*Du Zhong*] so why waste time…I was hoping [*Ling Zhi* helps the healing of the hip pain] but I don't feel much also.

> Maybe it [*Ling Zhi*] does help but…just that the effect is so little that you don't feel, you see (Niu MC10-73).

Four Chinese participants sought treatment from various Chinese *Sinseh* or TCM practitioners. The treatment proved both futile and ineffective in curing their chronic knee pain despite their persistence and patience in seeking a cure. One participant was advised by the Chinese *Sinseh* to proceed with the operation, as any further delay would hurt his back.

Ngian shared his encounter with TCM:

> They [Chinese *Sinseh*] give you…those things. Frankly…they always say '*Mi Fang*' [Mandarin word meaning 'secret recipe']. I don't know what is that. Each time some friends of mine recommended me to see [these] doctor[s] [Chinese *Sinseh*]. But I'm the 'patient' type. I still give them…a chance. Let them treat me at least for five to six months until they themselves give up (Ngian MC5-66).

Leng gave up hope on TCM eventually:

> Only on one occasion, a lady friend strongly recommended me to consult the Chinese *Sinseh*, a bone-setter [*Tui Na*]. My daughter insisted [seeking help from Chinese *Sinseh*]. I went once and was told it was beyond repair, '*Buay Sai Liao*' [Chinese dialect meaning 'cannot proceed further'] (Leng MC3-83).

Similarly, Hin gave up hope on TCM:

> After trying [TCM] for six months, one final day, my wife said 'Is no point keep on trying this, so many "donkey years"'. I think that day they trying at least three to four years. Each *Sinseh* at least six months until they themselves said 'give up'. Frankly speaking, it [TCM] didn't help (Hin MC8-71).

Boo expressed his concerns: 'He [*Tui Na* master from China] told me, said "you have to operate on your leg, otherwise you don't have the balancing, next time your back bone will get it"' (Boo MC9-66).

One female Chinese participant underwent regular acupuncture sessions to complement her prescribed painkillers. Although she was uncertain whether the acupuncture sessions actually alleviated her knee pain, she felt that it could be worse without acupuncture.

Acupuncture is a complementary treatment in TCM that involves the delicate insertion and manipulation of fine needles along the targeted points of the body's meridian for pain relief and to improve *qi* or energy flow (De Luigi, 2012).

Hua tried acupuncture:

> When he [doctor] give me the pain killer, he also asked me to go for acupuncture, the pain management department. So I go there…many times for acupuncture. One week…four times, then reduced two times. But I don't know whether it…help…[or]…not. I'm thinking if, I don't go…[for] acupuncture, maybe even worse (Hua FC14-65).

Some participants had a negative perception of traditional remedies and TCM. One male Sri Lankan participant was sceptical of wasting time on traditional treatments where he lacked understanding. Two Chinese participants expressed doubts and distrust over the sterility of acupuncture needles in TCM.

Panu expressed scepticism regarding traditional remedies:

> Whoever you meet, they will give silly advices. Then they told me go to Johor, do this, do that, I didn't. My driver suggested to me acupuncture at Dr S's clinic. I don't like to try anything that I don't understand. No. I don't waste my time [on traditional remedies] (Panu ML4-67).

Sui expressed distrust in TCM: 'I don't think TCM is that effective…this sort of thing, I don't trust the needles. Don't know sterilised or not these things. I don't quite trust TCM. I don't have faith in them' (Sui FC12-65).

Boo shared his views on TCM:

> Acupuncture, because in China maybe the needles are not so [clean]…in China, they can do a lot of fantastic things. So I don't go [for] acupuncture. And other things *Tui Na* (manipulative therapy), massage or cupping…all these is fine (Boo MC9-66).

One male Chinese participant distrusted TCM and stated the risks of acupuncture.

Hin felt strongly about TCM practice:

> I found out that all the TCM…what their aim is to make money. Squeeze all the money from the stone, the blood from the stone. Yes! I don't trust them. You know acupuncture, if you go to the wrong one, you can get paralysis. Don't play a fool [with acupuncture]. Just that I'm telling from my experience. Because he has a trust in the doctor, you cannot trust miracle (Hin MC8-71).

One male Malay participant placed his entire trust in modern medicine and distrusted the traditional healing of '*bomoh*' (Malay traditional healers) to cure his knee pain. Bomohs inherit the skills and trade of healing, but do not undergo formal training (Abdul Rashid, 2012).

Oman, a Malay participant, expressed distrust in *bomoh*: 'When you sick, in the religion [Islam]…you must see the doctor. I don't go to *bomoh*. I don't really believe *bomoh*. I don't believe' (Oman MM1-70).

Some participants immersed themselves in other complementary practices, such as music and chanting, to distract their mind and body from their hip or knee pain. Such distractions and immersions helped them to relax and thus cope better with the painful experience.

Boo expressed his immersion in music:

> In China, I went for *Tui Na* [manipulative therapy]. Because the only thing I know is I have to work. Because I'm a musician, I love music,

> you know. Once I'm sick, when I play music I forget about living (Boo MC9-66).

Kate testified to her coping:

> And I have been over a year…to Tibetan Buddhist teachings. I have friends who been chanting for me and praying for me. Well, I feel there is a…presence [practising meditation] helping me…strengthening me in mind. I am basically Christian, but I don't exclude other religions. And I have been over a year…to Tibetan Buddhist teachings. I also have been in a chanting group, which has helped me [relax the mind and pain] (Kate FS7-76).

In this study, participants sought various complementary therapies, such as TCM herbal remedies (*Ling Zhi* and *Du Zhong*), TCM practices (*Tui Na*, or manipulative therapy), acupuncture, medicated sprays and plasters, and music and chanting, to alleviate their hip and knee pain and relax the mind and body. Acupuncture was indicated as an adjunctive therapy to pain management to complement the medical treatment of analgesics for one female participant. However, some participants were sceptical of the efficacy of TCM or *bomohs* because of the perceived lack of evidence, and they preferred to rely on modern medicine to treat their severe osteoarthritis.

In relation to TCM herbal remedies, similar findings were made in a Taiwanese study that was conducted using the National Health Insurance research dataset, where a single herb of *Du Zhong* was one of the most commonly used Chinese Herbal Medicines for osteoarthritis (Chen, Chang, Hwang, Chen & Chen, 2014). It was also noted that Taiwanese female patients preferred using Chinese Herbal Medicine for osteoarthritis compared to male patients aged 40 years and above (Chen et al., 2014). The findings differed from the current study in that none of the four female participants sought TCM herbal remedies for their osteoarthritis. Only one female participant was prescribed acupuncture as an adjuvant therapy to analgesic management for osteoarthritis of the knee.

In relation to acupuncture, two qualitative studies (Bishop & Lewith, 2013; Hopton, Thomas & MacPherson, 2013) that examined participants' perceptions of acupuncture found that they placed hope on acupuncture to relieve their chronic pain for various conditions. The participants reported temporal relief and a reduction in the level of pain, which facilitated the acceptance of acupuncture.

In this study, music therapy and chanting were used by some participants to calm their mind and body in order to cope with their chronic hip and knee pain. Music stimuli enters the human cortex via the auditory nerve and temporal lobe to compete with incoming pain signals and trigger inhibitory pain signals and activate the parasympathetic nervous system for deep relaxation (Hanser, 2011). Similar findings were made in two quantitative studies, where music therapy calmed the human mind, enhanced the effects of analgesia, promoted feelings of power, and reduced chronic pain, depression and disability in participants with chronic non-malignant pain (McCaffrey & Freeman, 2003; Siedliecki & Good, 2006).

In this study, one Caucasian Singaporean participant found that Tibetan chanting or meditation relaxed and strengthened her mind and body to cope with her chronic hip pain. Meditation helped to regulate changes to her autonomic nervous system, thus creating a calming effect on her mind and body (Creswell, Way, Eisenberger & Lieberman, 2007). Internationally, it has been found that meditation has significant effects on mental flexibility (Wenk-Sormaz, 2005), attentional orienting (Jha, Krompinger & Baime, 2007) and self-reported emotional well-being (Bishop et al., 2004). The one Caucasian participant (THR) could have assimilated into the Singapore culture, practised chanting and meditation for pain management as compared to the remaining participants who did not utilise such approaches. In this study, participants differed in their approaches in relation to adoption of different cultural values in seeking pain relief for severe osteoarthritis.

The next section describes the fifth subtheme of ‘fear of side-effects of painkillers’, which depicts the elderly participants’ fear of the short- and long-term side-effects of painkillers.

5.3.1.5 Fear of side-effects of painkillers

Some of the Chinese participants were fearful of the side-effects of pain medication on their stomach and kidney as a result of regular consumption for their knee pain. They attributed their older age to the higher risks of side-effects from taking pain medication. As such, painkillers were only taken when the pain was considered intolerable. One participant resorted to consuming alcohol to dull his mental status and pain, but to no avail. Another participant related that the doctor discouraged her from taking painkillers because of similar side-effects.

Boo expressed his tolerance:

> I just tolerate the pain. I don’t like to take much painkillers. Unless is really, really painful…I cannot take it then…Because after all these years…the pain has been with me all these time…Even if I drink [alcohol] the pain still exists…doesn’t take the pain away. I think taking too much painkiller, there might be some side-effects on me (Boo MC9-66).

Niu shared his concern: ‘I was afraid maybe the side-effects [of painkillers]’ (Niu MC10-73).

Lian stated: ‘Because I said I am old, I scared the kidney got—something happen. You take too much also no good. *So wei ye bu hao* [stomach condition is not good]’ (Lian FC11-72).

Hua related: ‘Because Doctor X tell me don’t take [painkiller] so often. It will affect my kidneys [and] stomach’ (Hua FC14-65).

In this study, many participants refrained from taking prescribed painkillers because of the fear of short- and long-term side-effects of prescribed

painkillers on their bodies—specifically to the stomach and kidney—although they knew that they were dependent on the painkillers to relieve their knee pain. Two qualitative studies (Bremner, Webster, Katz, Watt-Watson & McCartney, 2012; Gustafsson et al., 2007) found that older patients who were undergoing joint replacement surgery and who experienced fear and anxiety regarding the side-effects of painkillers sought complementary therapies for their pain management.

The next section describes the theme of ‘gathering information to decide on surgery’ and the two emerging subthemes. It depicts how the elderly participants gathered information to make a decision regarding joint replacement surgery.

5.3.2 Gathering information to decide on surgery

Some participants gathered information from various sources to make informed decisions regarding joint replacement surgery. Both negative and positive influences from information sources such as the Internet, peers, family members and healthcare providers helped the participants to construct their decision and expectations of surgery.

In this theme, the two associated subthemes of ‘positive influence’ and ‘negative influence’ are expanded in the next two sections.

The next section describes the subtheme of ‘positive influence’, which involves positive influences on the participants from various sources of information in shaping their decision on surgery and its expected outcomes.

5.3.2.1 Positive influence

Participants received positive encouragement from various information sources, including the Internet, friends, colleagues, acquaintances, family members and healthcare providers, which influenced their decision to undergo joint replacement surgery.

Lim discussed the information he gathered from the Internet:

> I read a lot on Internet—there is one case, fastest the guy went back for golf six weeks after surgery. It depends on individual [recovering to play golf in six weeks after surgery], he could be younger and could be much lighter (Lim MC6-72).

Four participants gathered success stories from friends and acquaintances who underwent similar surgery and had good outcomes and recoveries. Their colleagues and friends further recommended good surgeons who had successfully operated on them. The participants felt calmer and more prepared for surgery upon hearing the success stories.

Sui received encouragement:

> I was limping all the time. Then…the [school] staff keeps asking me 'what happened? You better go and get surgery. Go and get it done'. Because they said they have people…friends and relatives who have gone through surgery and the person could walk again. Because we have [a] common friend who also went through one [knee surgery] after another [surgery]. Now she…can fly…can go for tour. 'You still want to suffer? You better go and get it done. Then you can join us next time for tour' (Sui FC12-65).

Niu gathered information from friends and church members:

> I get…from my friends, they went through with Professor X. They said, 'Well, don't worry, everything is fine', that kind of thing, also helped me. Think—mentally I'm already prepared, you see. So [I'm] quite calm. So I observed [movement of church member who had been through hip operation] and it was very good, and he said, 'This Dr X is very good, so why don't you go for it?' I observed him carefully and he actually was—improving his condition very well. In fact, right now, I think he can stoop and do everything he likes. That's why they [church friends] keep on saying 'Why don't you go for operation all that?' Every week, they mentioned it you see (Niu MC10-73).

Panu received moral support:

> Later on, after the (operation) date was fixed, I met my one-time boss. He is…82 or something. He is a…tall…wiry fellow, very, very thin, probably 70 kilos. He had [surgery] done on both legs and said he is playing tennis now. It took him another one and a half year, but he now plays tennis. So he said 'don't worry, this is the timeline'. He rolled up his pants, both legs, and he said 'don't worry, it'll be alright'. Then he told me it took him four weeks before he could walk with a [stick]. That helped. Actually to talk to someone who actually had the experience is quite different to speak to someone else. I have a lot of moral support from hundreds of people to me, my brothers, sisters (Panu ML4-67).

Leng received encouragement:

> While the other guy, the Englishman, he said, 'Ya, I did it. It's very good, no problem. Don't you see that I am walking?' He climbs up and doesn't use a stick. I have also met Professor W. She's retired. She did hers. She told me that she was walking after one week. That was encouraging. I've seen quite a few fellows in the clubs who had [a] knee operation. One of them had it done in Sydney, Australia. The surgeon who performed was one of the top [surgeons] in Sydney and a member of the same club. He was very happy with the surgery. That gave me…encouragement (Leng MC3-83).

Two male participants struggled with the difficult decision to undergo joint replacement surgery. However, they were strongly encouraged by their children to undergo surgery in order to regain their mobility.

Leng felt encouraged by his children:

> Before [my] operation, I bought wheelchairs—a big one and small one—to facilitate my travels. My children discouraged me and asked [me] to go for surgery instead so that I can be mobile. It was really a difficult decision on the surgery (Leng MC3-83).

Likewise, Panu was influenced by his children:

> My daughter told me something more profound. I was struggling with this. My son also said the same thing, but he is [in] Australia. So I talk to her a lot more than him. I am always struggling with this, you know? I can't. So…the arriving question is for any reason is fear or if you don't want to do it, then…how do you intend to cope? So my children said 'no choice, we have to go through this you see'. Alright, that's the main thing that influenced me (Panu ML4-67).

For some participants, their doctors gave clear and stern advice to choose surgery based on the severity or 'extensive damage' of their hip or knee. The advice served as an ultimatum for the participants, and they were left with no choice but to have surgery.

Sui testified to receiving clear advice from her doctor:

> The doctor there, they wanted to operate on me, I said, 'No'. That time I was still very new with this thing. So I said 'I still…want to get cured without surgery if possible you know, just get medications. I don't mind'. He [doctor] said…'that is a life sentence you want or not. You have two alternatives. Either you take the medications for the rest of your life or you go for surgery'. So I said 'I think no. I will take medications', and he was not very happy. Because I turned down this thing…So he said, 'Okay, you take…that is your choice' (Sui FC12-65).

Ngian reiterated the doctor's order: 'If you don't want the operation, no I'm not coming to see you anymore. They may be telling you the truth that you have to go for the operation' (Ngian MC5-66).

Ngian added:

> I don't want them [doctors] to nag at me. That's why I go back to the procedure again. I go back to [the] out-patient clinic. No second choice. Either you tolerate…it or operation. So I have no hesitation, take the choice (Ngian MC5-66).

Panu described his doctor's advice:

> So patient and so kind, he [doctor] explained to me and said there is not a lot of choices for me. I have to do this because [it] is almost now bone touching the bone. Even the X-ray when I'm seated down, the gap is so narrowed, so if you take an X-ray standing up, how you see the bones are touching, he said, 'you can't escape this' (Panu ML4-67).

Niu received advice from his doctor: 'After the X-ray…went back and he [doctor] said, "Well, this damage is too much already, there is no other way can correct [except by operation]"' (Niu MC10-73).

Niu expressed concern regarding his other knee: 'In fact, I asked Prof X, "You see, I think both sides need to be done". He said, "It's okay. We do one side first and we see the other one later"' (Niu MC10-73).

The information gathered by the participants from the Internet, friends, colleagues, acquaintances, family members and healthcare providers was important and influential, helping the participants to make a decision regarding surgery. Participants relied extensively on their information sources—especially the direct accounts of success stories—to help them decide on joint replacement surgery. In this study, the multi-ethnic participants embraced strong cultural values, as family members worked cohesively and interdependently to lend support to each other in times of need. The caring roles of family members regarding the well-being of the participants provided a strong impetus to consider surgery.

The participants reported the interactions with their healthcare providers such as the surgeon who was seen to provide information towards the decision-making of their surgery. The doubts and hesitancy of some participants in the decision on surgery eventually led to firm decision on surgery as they have understood that surgery was the only option to alleviate the severity of their pain and disability. Eventually, these participants realised that surgery was the best option for them given the severity of their knee or hip condition. The

interaction between participants and healthcare providers such as the primary doctors in the discussion of their severity of condition was a key influence in the participants' decision making for surgery. There was a need for more patient-centredness during the interaction so that participants were part of the shared decision-making of surgery. Similarly, Mead & Bower (2002) stressed the need for shared power and responsibility between the doctor and patient in building a therapeutic alliance to benefit the patient as part of its conceptual framework on patient-centredness.

In relation to gathering pertinent information, similar findings were made in some qualitative studies (Clark et al., 2004; McHugh & Luker, 2009), where the elderly participants believed that the Internet, friends, colleagues, acquaintances, family members and healthcare providers were important sources of information in making a decision regarding surgery. The information from these sources was used to form perceptions on the positive outcomes of joint replacement surgery. Participants' family members were also an influential source, as they wanted the participants to regain their mobility and physical functioning through surgery. Family members had personally witnessed the gradual deterioration of the physical functioning of their loved ones.

In relation to caring, two qualitative studies (Dosanjh, Matta, Bhandari & Anterior, 2009; McHugh & Luker, 2009) found that the caring roles of family members positively influenced participants' decisions regarding surgery. Overall, Asian families played key supportive roles in providing direct and indirect assistance to their family members (Grewal, Bottorff & Hilton, 2005). Emphasis was placed on strong family cohesion and consensus in influencing participants' decisions regarding surgery (Carteret, 2011).

The next section describes the subtheme of 'negative influence', which entails the negative influence of peers on participants' decision regarding surgery.

5.3.2.2 Negative influence

Information from peers was not always positive and encouraging. Some participants received discouraging information from their friends and acquaintances. Four participants felt apprehensive and frightened upon hearing accounts of joint replacement surgery with poor surgical outcomes. One example involved a participant's friend who was still dependent on a walking stick many months after surgery. Another example was a participant who witnessed a friend who had a cage or knee fusion after a surgical complication.

Leng expressed disappointment with his friend:

> Nobody has helped me so far. Nobody. The fellow [a club member] who was supposed to be a brother and yet don't let me know what's happening. But we had another local member, rather annoyed at him. He had an operation but also using a walking stick…after so many months. Something must be wrong. He wouldn't tell me. I think he did it in Singapore. I asked him…[about his] operation. He said, 'You go and do it'. I think it was a naughty answer. I was not bothered anyway (Leng MC3-83).

Panu was frightened upon hearing of the complications:

> She [a friend] showed [his wife] this long scar and said, 'Be very careful, this is not so simple'. It took her three years to recover. Whenever I heard negative comments, say my office fellow…said he has a friend who now has…a cage on his knee. So I asked Prof. L, 'Why would anyone ended [up] with a cage?', and he explained to me that something…seriously wrong. Now there's no chance for the knee to work, so it will fuse the two bones. Frightening! (Panu ML4-67).

Lian expressed confusion: 'A lot of the friends said, "you cannot operate your leg"' (Lian FC11-72).

Lim shared some advice he had received: ‘We met another lady who told us, “if we can handle it, don’t touch it” (Lim MC6-72).

Some participants received strong discouragement from their friends and acquaintances; they were advised to delay or not go for surgery because of the possible complications and failure. Such negative information from friends and acquaintances left an indelible impression of the surgical risks and negative outcomes, which affected the participants’ decisions regarding surgery. One qualitative study (Clark et al., 2004) found that Canadian participants (mean age of 69 years old) constructed their risk assessment of joint replacement surgery from cumulative learning and experiences.

Negative influences could powerfully shape the participants’ attitudes and perceptions, thereby deterring their acceptance of joint replacement surgery (Clark et al., 2004). In this study, it was clear that the elderly participants drew upon a wide range of information sources that had either positive or negative influences on their behavioural responses and personal beliefs prior to framing perceptions on the appropriateness of joint replacement surgery as the best option to alleviate their pain and disability.

The next section describes the theme of ‘living in fear, anxiety and uncertainty in anticipation of surgery’ and the two emerging subthemes. It depicts participants’ fear, anxiety and uncertainty as they waited for their surgery.

5.3.3 Living in fear, anxiety and uncertainty in anticipation of surgery

Some participants lived with constant fear, anxiety and uncertainty as they waited for their surgery. During the waiting time, they sought peace of mind and inner strength from their faith and religion, and they reflected upon memories and the confidence of past surgical experiences as they entrusted the outcome of their surgery to formal carers.

The associated four subthemes that emerged were ‘fear and anxiety’, ‘drawing peace of mind and inner strength from faith and religion’, ‘drawing from past experiences’ and ‘entrusting the outcome of surgery to formal carers’.

The next section describes the subtheme of ‘fear and anxiety’. It depicts the elderly participants’ expressions of fear and anxiety in anticipation of surgery.

5.3.3.1 Fear and anxiety

Some participants experienced fear and anxiety as their surgery became imminent. They experienced sleepless nights, nightmares and the fear of not waking up after a night’s sleep to experience the day of surgery. They were doubtful of coping with pain after surgery and fearful of the risks and complications of surgery that could bring about a poor surgical outcome and recovery.

In relation to the decision-making aspect of joint replacement surgery, some participants experienced negative emotions, such as fear and apprehension towards surgery. The waiting period proved to be ‘torturing’ as they waited anxiously for the fateful day.

Sui expressed her fear:

> Yes, I was very fearful. I wish I…didn’t have to go through surgery. I only want to rely on surgery. I want to go for surgery and yet so fearsome of surgery. First thing, I wish I could get it over and done with. Because I was very fearful, I didn’t want to go through surgery. So maybe, I’m the very worrying type, I think so (Sui FC12-65).

Sui described the waiting period:

> That period was…a torture. In fact, the period until the surgery day, the very day also I was in fear, live in fear like that. The fear was in me for months and months. At night, also couldn’t sleep. So frightening, every night I had nightmare (Sui FC12-65).

Lian expressed fear of complications: ‘Means no, means no recover. I [feel] scare[d]. What happened? I must…operation second time. I’m scared’ (Lian FC11-72).

Leng likened it to a dream: ‘Like a dream. At night when I sleep, I may not get up’ (Leng MC3-83).

The fear of postoperative pain made the participants doubtful of undergoing joint replacement surgery. Some participants with a low threshold of pain were apprehensive of their ability to cope with the pain after their surgery. However, they received reassurance from their doctor that their pain would be well managed after surgery.

Leng expressed concern: ‘I told him that my utmost fear is pain. I have very low threshold of pain. He [doctor] said, “Not to worry as we have good pain management. You will [be] under sedation”’ (Leng MC3-83).

Sui expressed fear:

> And yet the fear of surgery, the fear of the pain—and then I think of the post surgery, then how am I going to cope? How am I going to cope with…the surgery—everything. Then I’ll be so helpless (Sui FC12-65).

Some participants were fearful and anxious of the risk and complications of surgery. They realised that the surgery could be a failure or they could be permanently crippled. However, they were left with no choice but to undergo surgery.

Panu expressed his concern: ‘Dr X was quite forthright. He told me there are failures in like any other surgery, 4–5 per cent won’t work’ (Panu ML4-67).

Panu described the operation:

> But the knee replacement is a one-way street you know. By the time they finished the operation, they already cut out the bone, you can’t

> reattach it. So that's a very bold step I take. If it doesn't work, you are going to [be a] cripple in the wheelchair for the rest of your life (Panu ML4-67).

Panu expressed:

> She [daughter] told me, 'Even if all the risks are there, what choice do you have? Either you take the risk and go for it or do you like to be [like this] for the rest of your life? You are not exactly very old to be using crutches. That's why you have to take the risk'. My son is also a doctor, but he is a psychiatrist. He also told me the same thing: 'Look, don't listen to all these things, there is no choice, you have to go' (Panu ML4-67).

Fears and anxiety were not readily articulated, but they were revealed in the participants' nightmares and thoughts of death. Similar findings were made in three qualitative studies (Clark et al., 2004; Dosanjh et al., 2009; McHugh & Luker, 2009), where the participants were overcome by their fear of uncertainty, postoperative pain and/or dysfunction and risks related to joint replacement surgery as their surgery became imminent. The participants weighed the anticipated benefits, such as improvement in quality of life and the 'cure' of joint replacement surgery, against the risks of surgery (McHugh & Luker, 2009).

The next section describes the second subtheme of 'drawing peace of mind and inner strength from faith and religion'. It depicts the elderly participants' experiences of drawing peace of mind and inner strength from their spiritual practices as they waited for surgery.

5.3.3.2 Drawing peace of mind and inner strength from faith and religion

Some participants drew peace of mind and inner strength from their spiritual practices as they waited anxiously for surgery. They were thankful and appreciative of the prayer support received from family members, church friends and colleagues.

These participants sought spiritual blessings for a safe, smooth and speedy recovery, as well as getting the right surgeon for their joint replacement surgery. They visited churches to seek God and many temples to seek '*Guan Yin*' (Chinese deity known as Goddess of Mercy) for spiritual blessings. One male participant was sceptical of receiving healing from God, as he left the church a long time ago and only sought God during troubled times. Embracing spiritual faith instilled more reassurance in the face of surgery.

Leng expressed doubt: 'It's when I am in trouble, I seek God. I am a Freemason—one of the biggest supporters of churches and hospitals' (Leng MC3-83).

Mien expressed her spiritual needs: 'I was thinking, "God please help me…[in] this case, *Guan Yin* [Goddess of Mercy]. I pray—for safe, smooth and speedy recovery…[with] God's help". Because I pray for good, speedy recovery, the healing power' (Mien FC13-66).

Lian expressed a need to pray: 'Before [the] operation [I] go so many…places [temples] to pray. Because…I want safety …[during] operation [of] my leg' (Lian FC11-72).

Leng expressed doubt:

> I wondered if my condition can be healed. I was born Christian, but I've been off the church for a long time. I seek God to give me less pain and getting to know the right people to do the right job. This is also God's blessing. At age 80, I told myself to go back to the church. I went back to the Methodist church. As I am older now, I feel that God is going away. Like a dream. At night when I sleep, I may not get up. So, I need to have more faith for self-assurance (Leng MC3-83).

Some participants testified to entrusting the outcome of their joint replacement surgery to fate and destiny. One Chinese male participant expressed that poor healing and a poor surgery outcome would translate to poor karma (the law of moral causation).

Lian was resigned to her fate: '*Zhe ge shi ming* [It is fate] (Lian FC11-72).

Leng reasoned: 'And I owe the karma [deeds] to everyone. If you can't heal, you can't do anything. That means something is wrong with you' (Leng MC3-83).

Some participants embraced faith and trusted in God as the 'superpower' to grant them peace of mind and inner strength to face surgery. Such faith and trust enabled them to accept the outcome of the surgery.

Niu stressed:

> We just have faith in God. So don't have to worry that much about what is coming. That is the next thing. A peace of mind. I think it helps lately, in a sense that I do not have worries about what is going to happen or what has happened. Because I think religiously, this is very important. You have some…so-called superpower to be…relying on that you don't have to worry for yourself, and that helps very much. To keep a peace of mind I think is very important (Niu MC10-73).

Huay felt reassured:

> Because…our faith we rely [on] God and then…we just put our welfare in his hand. Whatever outcome, so we have peace of mind. So whatever is going to happen. Whenever you really fear, you pray…to God. This definitely helps. How much it reduces your feeling of [fear]…difficult to quantify (Huay MC2-78).

Leng expressed his fate:

> [I] went in there and the anaesthetist went to the 'Rigmarole' [expression meaning the rigour of explanation] again, explaining the whole thing. I said 'never mind. If it's God's will, you know. If have to go, I go…' (Leng MC3-83).

Some participants were appreciative of the prayer support received from their family members, church friends and colleagues, as it gave them inner strength, which made them less fearful of surgery and associated discomfort.

Sui expressed her sibling's support: 'My sister also, her constant prayers. Very often she called me up, just to pray' (Sui FC12-65).

Huay felt thankful: 'A lot of people support me with the prayers…At least that will give me some sort of strength. That will be…I think in a way also help me to face all these' (Huay MC2-78).

Huay explained how prayers gave her support:

> As a Christian, I have a lot of friends, church members once they come to know [surgery] then, they all said that they will pray for you. Even non-believers, my colleagues. Anyway, when they say want to pray for me, I was very happy to hear that because all these guys that I've been trying to bring them to know Christ. All these friends wanted to pray for me. I feel less fearful as prayers gave me support. Christians and non-Christians prayed for me (Huay MC2-78).

Kate reiterated the strength of prayers: 'I think that all religions ultimately lead to the same God. I think it's prayer [that] is strengthening. Prayer is very important' (Kate FS7-76).

In Chinese culture and beliefs, one's fate is believed to determine one's life destiny. Karma (the law of moral causation) is a doctrine in Buddhism that is also applied in the context of healing as determining one's fate and destiny. Karma has been defined as the accumulation of one's deeds from past and present actions that determine one's destiny and outcome (Sayadow, 2013). Thus, there is a connection between bad karma and poor surgical outcomes, and good karma and successful surgical outcomes and good healing. There was no literature found that described participants leaving their outcome of surgery to fate or karma. Therefore, this is the first study in Singapore where

there has been an emergence of Chinese participants' descriptions of fate and karma as they approached joint replacement surgery.

Some participants expressed seeking explicit practice to seek a spiritual blessing from God and '*Guan Yin*' for a safe, smooth and speedy recovery for their impending surgery. In Chinese culture, *Guan Yin* (Goddess of Mercy) is a deity or god known to grant healing and comfort in times of distress (Buddha Dharma Education Association Inc., 1996–2014). The Chinese participants in this study worshipped *Guan Yin* prior to surgery to seek healing, safe and successful surgery. These findings resonate with a qualitative study conducted in the United Kingdom, where THR participants engaged in specific faith and belief or spiritual practices to cope with the disease process as part of spiritual coping. However, the participants were not solely limited to the elderly (Nasr et al., 2012). In a qualitative study conducted in the United States, participants drew upon their spiritual resources to cope with the challenges and uncertainties surrounding their illness and surgery (Griffin & Yancey, 2009). Several studies (Lin & Bauer-Wu, 2003; Simha, Noble & Chaturvedi, 2013; Surbone & Baider, 2010) in the palliative care setting have found participants who seek spiritual support and identify 'coping', 'sense of faith', 'empowerment', 'passive acceptance of their situation' and 'living with hope'. In the current study, some participants undergoing joint replacement surgery found inner strength and peace of mind from their explicit spiritual practices to calm their mind and body in anticipation of their surgery.

The next section describes the third subtheme of 'drawing from past experiences'. It describes how the elderly participants reflected on their past surgical experiences to cope with their impending joint replacement surgery.

5.3.3.3 Drawing from past experiences

Some participants who had undergone prior surgery were less anxious and better prepared for their impending surgery. Those who had previously undergone TKR surgery felt more confident and calmer in facing a similar

surgery. One female Caucasian participant attributed the ease of preparation for surgery to her working experience as an anaesthetist at a hospital.

Boo expressed his calmness: 'But generally I'm not anxious because I already…I went through once [previous TKR]. Those I know. Yes, I'm well prepared [because of previous operation]' (Boo MC9-66).

Hin felt calm:

> For me, because I have my experience from my [previous TKR] leg, so I feel nothing wrong with this. Not because you have experience you don't get excited or what, whatever it is, I don't feel that 'abnormal' (Hin MC8-71).

Kate expressed her working experience: 'I mean, it [undergoing surgery] is easier for me because I am used to surgeries and anaesthesia, ward life and so on in the past [due to her past working experience as an anaesthetist]' (Kate FS7-76).

In a study by Frankel et al. (2012), participants with prior experience of joint replacement surgery were mentally prepared and demonstrated a positive attitude, motivation and willpower in preparing for surgery. This finding is in accordance with this study, as participants who had previously undergone surgery or joint replacement surgery were more confident, positive and calmer in facing their impending surgery.

The next section describes the fourth subtheme of 'entrusting the outcome of surgery to formal carers'. It describes how the elderly participants entrusted the outcome of their surgery to fate and formal carers as the day of their surgery drew nearer.

5.3.3.4 Entrusting the outcome of surgery to formal carers

Participants entrusted their fate to modern medicine and formal carers. In this study, formal carers refer to the nurses and doctors who had direct contact

with participants during the hospital encounters. They were informed by their doctors that the lifespan of the implants would be between 12 and 20 years. Nevertheless, the participants hoped that the implant would be with them until the end of their lives. It was expected that joint replacement surgery would add better-quality life years rather than a life restricted by pain and disability. They placed their trust in their surgeons, who knew what was best for their condition, and they felt reassured with the comforting words of nurses.

Lim felt reassured with the implant:

> And besides I said the surgery these days are so modernised and so advanced. Who knows, maybe the implant will…in your case may last longer than the prescribed time. So when I reach 70s…implant can last 20 years, I expire together so (Lim MC6-72).

Lim expressed his expectations:

> The modern surgery now…is so…effective and implants are very effective. But I heard that…you know, the operation can last maximum 12 years, 13 years. I said 'it doesn't matter because it will at least give…a quality of life' (Lim MC6-72).

Boo placed his trust in his surgeon: 'Once…the surgeon is in the theatre, whatever I think they [do]…I trust them, I put my life on them, whatever they think is best for me, okay I just let them do it, that's all' (Boo MC9-66).

Lim felt reassured: 'Briefly, I think one of them [nurse in operating theatre] came and said Mr X, "we [are] taking care of you, don't worry"—these kind of things' (Lim MC6-72).

The trust in modern medicine, along with competent and caring formal carers, gave the participants confidence and reassurance to face their surgery. This finding is supported by a qualitative study (Gustafsson et al., 2010b) on older persons undergoing joint replacement surgery, where participants required assurance of their formal carers' competence and a caring attitude to ensure a good surgical outcome and a comforting presence. Some aspects of medical

paternalism were evidently conveyed in the transcribed interviews, as participants subscribed to medical authority in terms of trust and confidence.

The next section describes the theme of 'receiving information in preparing for surgery'. It describes the elderly participants' experiences as they received information to prepare them for surgery.

5.3.4 Receiving information in preparing for surgery

Most participants were satisfied with the careful and detailed explanation of the options of anaesthesia by the anaesthetists at the pre-assessment clinic and operating theatre to help them make informed choices of the types of anaesthesia. Many were glad to be given a choice of anaesthesia. The participants felt reassured that they would be asleep and experience good pain management during the surgery.

One male participant was satisfied with the 'thorough' preoperative assessment of the anaesthetist. As he was concerned with the effect of his sleep apnoea during the surgery, he was pleased with the careful and detailed explanation of the anaesthetist, which helped him to make an informed decision of his choice of 'regional block'.

Panu described his experience with the anaesthetist: 'I had an interview with the anaesthetist…a very, very good experience. The pre-op assessment was so thorough one week before surgery' (Panu ML4-67).

Panu described his choice of anaesthesia:

> I also have this thing called sleep apnoea. So the anaesthetist who examined me during the preoperative assessment…told me that I have a choice. If I want a comfortable option, I can take the full anaesthesia, which is the normal thing. Because of the apnoea, they may have to intubate me…but may cause irritation when I am awake…irritation at the throat. So if you want the comfort of unconscious[ness], then you have this problem. Then she said there is another solution, which

> is…an epidural regional block. She said you won't be as comfortable as the general anaesthesia. So they said if you want, you have to choose. If you want to be safe from infection of the throat, then best thing you take regional block (Panu ML4-67).

Some participants were glad that the anaesthetists provided a clear and detailed explanation of the options of epidural and general anaesthesia to help them choose a type of anaesthesia when they were at the operating theatre. One participant was told that his throat would be sore, and that the recovery from the anaesthesia would be slower if he opted for general anaesthesia. As a result, participants preferred to be asleep, along with receiving epidural anaesthesia during the operation. They were reassured that they would be sedated during the epidural anaesthesia, and that their pain would be well managed during the surgery.

Leng described his encounter in the operating theatre:

> I was going in and out…quite a maze [being wheeled into the operating theatre]. When I reached the operating theatre, Dr X had just finished his other patient. I went in there. The anaesthetist gave the whole story again. I decided on epidural. Epidural is half. I didn't even feel anything. He gave me the sedation [local anaesthesia]. I didn't even feel the needle going in. I said that I preferred to close my eyes and sleep but not the full one, you know. Because I had a full one before. And he [anaesthetist] explained that if you have full anaesthetic, they have to put a hose inside the throat and it can become sore and the recovery is slower. So I take this one [regional anaesthesia] (Leng MC3-83).

Lim was pleased with the explanation:

> I went to the prep room, prep theatre where the anaesthetist spoke to me, explained to me. She did a very good job. Very, very detailed…explanation [type of anaesthesia] and I only have a local injection on the back. And then she asked and…she said normally they

> will also give something put you to sleep, so I request of course, if I feel okay, I want to stay awake (Lim MC6-72).

Leng gathered information:

> It is up to you whether you want full anaesthetic or half epidural. If epidural, your recovery will be faster. You won't feel any pain, you may hear something and there is a screen in front of you. That's it (Leng MC3-83).

Leng expressed fear: 'I told him that my utmost fear is pain, I have very low threshold of pain. He [doctor] said, "Not to worry as we have good pain management. You…be under sedation"' (Leng MC3-83).

Shared decision-making was demonstrated by some participants expressing involvement in making informed choices about the type of anaesthesia. In this study, most participants had attended about 30 minutes of preoperative assessment clinic between two to three weeks before their surgery. Most participants preferred the option of epidural anaesthesia so they could remain awake, experience fewer side-effects of general anaesthesia (such as sore throat) and recover faster from the anaesthesia after surgery.

With patient empowerment and shared decision-making in care, some studies (Clark et al., 2004; McHugh & Luker, 2009) have found participants to be more confident and less anxious when undergoing surgery. An approach of shared decision-making between participants and healthcare professionals gave a sense of a planned perioperative journey of undergoing joint replacement surgery. Receiving information at an appropriate time enhanced participants' understanding and satisfaction. Similar to section 5.3.2 Gathering information to decide on surgery, the interaction between the participants and the healthcare providers provided pertinent information to the participants in making an informed decision towards the type anaesthesia. The shared power and responsibility between the participants and healthcare professionals in building a therapeutic alliance in patient education and informed decision formed a basis of patient-centredness (Mead & Bower, 2002).

The next section describes ‘finding solution’, which is an intraoperative phase where the participants underwent surgery to relieve their pain and limiting body.

5.4 Finding a Solution

The second phase of the perioperative journey describes ‘finding solution’ (intraoperative). This section describes the participants’ journeys in finding a solution for their pain and disability. It reflects their sense of awareness of sounds and scenes, as well as their fear and apprehension of the experience of detachment and alienation during the surgery.

In this phase, all participants reported being aware of their environment during surgery as they underwent regional anaesthesia, except one male participant, who underwent general anaesthesia. The unanticipated sounds and sights in the operating theatre drew different behavioural responses and coping strategies from the participants. According to SCT (Bandura, 1997), participants who are unable to anticipate such distressing sounds and sights will experience negative behaviour, fear and stress. In contrast, participants with prior experience of joint replacement surgery can better anticipate the sounds and sights, leading to successful behavioural responses.

The element of reinforcement (SCT, 1997) refers to both the intrinsic and extrinsic behavioural responses that determine the possible trajectory of a response. Through self-management, some participants soon learnt that letting the anaesthetists know that they were awake brought on the possibility of more injections to sedate them further. Reciprocal determinism (SCT, 1997) explains the dynamic interaction of personal factors (personal beliefs of the participant), environment (anaesthetist and other staff in the operating room) and behavioural response (participants closing their eyes to show that they are asleep).

The participants felt alienated when they could see their legs manipulated, and they were overcome with a sense of physical detachment and remoteness from their body during surgery. Faced with the unanticipated sounds and sights, as well as the loss of control of their physical body and sensation during surgery, the participants coped with the mental readjustment during this phase. Such experiences were accepted as a necessary part of the surgery.

The next section describes the emerging theme of ‘detachment from the body during surgery’ and its two associated subthemes.

5.4.1 Detachment from the body during surgery

One theme and two associated subthemes emerged for this ‘finding solution’ (intraoperative) phase. The theme was ‘detachment from the body during surgery’, and the associated subthemes were ‘awareness of operation-related sounds and scenes’ and ‘feelings of physical detachment from the body’ (see Table 5.2).

The next section describes the subtheme of ‘awareness of operation-related sounds and scenes during surgery’. It depicts the elderly participants’ awareness of the sounds and scenes in the operating theatre during the surgery.

5.4.1.1 Awareness of operation-related sounds and scenes during surgery

Despite being sedated, participants were aware of the sights and movements during the period of surgery. Some participants could view the surgical team on the television screen manipulating their limbs by straightening and bending the legs. At times, the surgical team was cutting and hammering the legs. They were aware of people running around in the operating theatre in a coordinated fashion to render assistance to the surgeon. When the staff realised that the participant was not asleep, they put up a cloth as a barrier so that the participant could not view the television screen.

Oman described the scene: ‘Then take one and a half hour, there when I looked on the left, I saw the TV but I cannot see what they do’ (Oman MM1-70).

Oman further described the scene: ‘But this knee operation, I think about 10 people inside. Run here, run there. Very cooperative. A lot more people to handle this’ (Oman MM1-70).

Lim described the manipulation of his legs: ‘So it’s very interesting, watching them. Straightened up, bend, straightened’ (Lim MC6-72).

Ngian described: ‘Later on, they [staff at operation theatre] found out that I never sleep. They put the cloth so I can’t see anymore. So I can see doctor cut and hammer…my goodness’ (Ngian MC5-66).

The different sounds heard during the surgery were described as voices of people talking, knocking, hammering, sawing, drilling and cracking bones as their body lay half numb and helpless on the operating table. Participants who preferred not to hear such sounds tried to fall asleep. The sounds made them feel that they were in the midst of a mechanical or carpentry workshop. This experience brought back memories of previous knee surgery in the operating theatre. For one participant who used to work as an anaesthetist, it brought back memories of working in the operating theatre.

Mien felt disturbed:

> They hammered my bones—the iron they hammered in. I was hearing the sound ‘kok, kok, kok’. So I dare not see, so I sleep again. Then later, I saw…they bandaged my leg (Mien FC13-66).

Lian described the sounds:

> What’s happening? Because I first time operation, so don’t know what…happened. After that the bone and the bone put together—the sound ‘crack’. I don’t know how…the ‘king, king, kong, kong’

> [knocking sound] before operation, the nurse told me, the very serious one is the bone and the bone put together (Lian FC11-72).

Oman described the sounds and sights: ‘All the knocking sounds…I want if possible I want to see. I see doctor hand only’ (Oman MM1-70).

Unperturbed, Hin described the sounds: ‘Hammering “bang, bang”, sawing, then drilling, now you can hear it. Drilling sound also lower than my first operation, like a mechanical workshop’ (Hin MC8-71).

Panu described the sounds: ‘Then after my half body numb, they start…operation. I heard everything. Like knocking, like sawing’ (Panu ML4-67).

Hin recalled similar sounds: ‘Sounded like “crack, crack, crack”. It was interesting because I could hear the drilling and sawing going on and the voices took me…brought back to my old days of anaesthesia’ (Hin MC8-71).

Lim described the sounds: ‘I heard the banging, the drilling and all that’ (Lim MC6-72).

Panu likened the sounds to a carpentry workshop: ‘The fellow [anaesthetist] said “Hello” to me. I said, “What kind of noises are you making?” He said, “Don’t you know we have a carpentry workshop here?”’ (Panu ML4-67).

Although some participants were keen to be awake during the surgery, they began to feel scared and upset upon hearing the knocking, sawing and machinery sounds as they lay awake during the surgery. They felt distressed and decided not to view the television screen anymore.

Kate preferred not to hear the sounds: ‘I don’t fancy the idea of hearing the saws and machines and tapping and knocking’ (Kate FS7-76).

Panu felt upset at hearing the noises: ‘But I told the anaesthetist that I don’t want to see these cameras here. But the noises was really, really, really upsetting’ (Panu ML4-67).

Oman felt scared at hearing the sounds: ‘I didn’t sleep, you see. Doctor asked if I want to sleep. “No”, I said. I heard [sounds during the operation]. Wah! I was scared’ (Oman MM1-70).

Some participants realised that they were conscious and very much aware of things around them throughout the operation, although they were told by the anaesthetists that they would be sedated. They reported that the anaesthetists seemed shocked that they were still awake and gave them a further injection to sedate them. Soon, some participants learnt to close their eyes and pretend to be asleep and sedated to avoid receiving further injections by the anaesthetist.

Ngian pretended to sleep:

> I know he [anaesthetist] injected something, but happened that I didn’t sleep. They didn’t realise I didn’t sleep. They [anaesthetist] said put me to sleep but I was awake. They got a shock that I was awake: ‘Why you never sleep?’ They injected again. Because they keep on adding, should sleep. This time I learned, I’ll close my eyes, so they don’t bother me (Ngian MC5-66).

Mien was half asleep: ‘Half sleeping, half open my eyes. Sometime open it, sometime sleep again. Open again and sleep again’ (Mien FC13-66).

Panu was aware during the operation: ‘She [anaesthetist] told me sometimes I may fall asleep but I didn’t. I don’t know whether I was sedated. But told me I will be sedated but I don’t feel that. I was conscious throughout the operation’ (Panu ML4-67).

One female Caucasian participant felt calm despite hearing the drilling and sawing sounds in the operating room. It was likely due to her previous work experience as an anaesthetist in the operating room.

Kate felt calm: ‘I suppose—pretty calm [hearing the drilling and sawing sounds inside the operating room] about it I should say’ (Kate FS7-76).

In the current study, the participants’ awareness of sounds and sights drew mixed feelings. Some participants who had regional anaesthesia were expecting to be asleep and sedated during the joint replacement surgery. However, they were surprised that they were awake and conscious during the surgery, and they found the unanticipated sights and sounds to be upsetting and distressing. Those who had undergone previous joint replacement surgery or who had work experience in the operating theatre were more accepting and felt calmer. In a qualitative study (Gustafsson et al., 2007) conducted in Sweden on older persons undergoing joint replacement surgery, some participants trembled with fear upon seeing a sledgehammer being used on their bodies during the surgery, which seemed to last for hours. However, they were appreciative of the staff when they request to sleep was fulfilled. Similar to the study by Gustafsson et al. (2007), the participants in the current study felt that they were unprepared for the experience in the operating theatre during the surgery. However, they reported that they were grateful to the anaesthetists who tried to ‘top-up’ with injections to sedate them further upon seeing them still awake.

Awareness of operation-related sounds and sights during the surgery resulted in different behavioural responses and coping mechanisms among the participants. Coping with the unanticipated sounds resulted in fear and restlessness as some participants gained consciousness during this period. Some participants who had prior surgical experience allowed better anticipation and preparedness of the situation. Participants were not informed on the possibility of gaining consciousness whilst under sedation during the surgery by the health professionals, in particular, the anaesthetist. They could have been better prepared preoperatively on the prospect of gaining consciousness whilst under sedation and regional anaesthesia to reduce fear and restlessness during surgery.

The next section describes the subtheme of ‘feelings of physical detachment from the body’. It depicts the elderly participants’ experiences of detachment from the body during the surgery.

5.4.1.2 Entrusting the outcome of surgery to formal carers Feelings of physical detachment from the body

During the surgery, some participants felt that they were physically detached or remote from their body; they felt that their legs were no longer part of their body. As the sense of remoteness from their legs pervaded them, they were intrigued to view their legs being manipulated by being thrown about and cut open during the surgery. They could not feel any pain in their legs.

Lim described his sensation: ‘It was total numbness of my left leg and almost fully numb also half-way through on my right leg’ (Lim MC6-72).

Lim lost control:

> The bones, the flesh and all that…but you couldn’t feel a thing. So remote…out of the way…not part of you. So, quite an experience. Because you see your leg being throw[n] about and then open up and all that (Lim MC6-72).

Leng expressed her loss of sensation: ‘You won’t feel any pain, you may hear something and there is a screen in front of you. That’s it’ (Leng MC3-83).

These findings relating to participants’ sense of detachment indicated their sense of defencelessness as they experienced a loss of control of their bodies when their bodies were mechanically handled and manipulated during their surgery. A similar theme of ‘a defenceless and renounced body’ in a qualitative study (Gustafsson et al., 2007) on older persons undergoing joint replacement surgery found that participants felt fearful and horrified about losing control of their bodies as they watched their manipulated legs while they lay half-numb and awake during the surgery. Fear and apprehension overwhelmed the participants because they were unprepared for the

experience of alienation and a defenceless body. Such experiences were reported by the participants who had undergone TKR only.

5.5 Summary

This chapter presented the demographics and relevant health history of the 14 elderly participants, as well as a summary table depicting the eight themes and 21 subthemes of the three critical phases of ‘beginning of pain’ (preoperative), and ‘finding solution’ (intraoperative) and ‘recovering’ (postoperative). This chapter discussed the findings of the five emerging themes and 13 subthemes from interview 1 during the phases of ‘beginning of pain’ and ‘finding solution’.

Chapter 6: Findings and Discussion II

6.1 Introduction

This chapter focuses on the third and last phase ‘Recovering’ (postoperative) of the participants’ perioperative journey. In this chapter, the postoperative findings were analysed and discussed in light of the relevant literature on the elderly participants’ perceptions of their perioperative experiences during the recovery period. The following postoperative findings informed the ‘recovering’ phase using the theme headings of: ‘adapting to an unfamiliar body’, ‘cultural beliefs/practice on the recovering body’ and ‘adjusting to a new body and life again’, and the subtheme headings of: ‘experiencing problems related to surgery’, ‘discovering possibilities and limitations to own body’, ‘yin-yang of foods for the recovering body’, ‘getting the body to be in charge again’, ‘adaptation to life with new leg’, ‘appreciative of support from informal carers’, ‘togetherness with family members and friends’ and ‘encouraging others to undergo surgery’.

These findings focus on the elderly participants’ perceptions of their perioperative experiences when they were transferred from the operating theatre to the post-anaesthesia care unit the recovery period (postoperative). This chapter will also address how the empirical findings in Chapters 5 and 6 and answer the key research questions. In addition, the chapter critiques the utility and suggested modification of the adapted model (see Figure 3.3). Lastly, the chapter discusses the limitations of the study.

6.2 Recovering

The 14 elderly participants mainly shared their postoperative experiences in recovering from joint replacement surgery in the second interview, although the first interview shed some light on the initial part of the postoperative experience.

The findings in this section describe the postoperative experiences of the 14 elderly participants with either hip or knee osteoarthritis who underwent joint replacement surgery. The findings served to construct the participants' journeys of recovery and rehabilitation to regain their lives after experiencing pain and disability in a deteriorating body for a period of years. Three themes and eight subthemes emerged in the 'recovering' phase to capture the essence of the postoperative experiences of elderly Singaporeans adapting to an unfamiliar body and a new leg as they coped with challenges in discovering the possibilities and limitations of their bodies. The cultural values and personal beliefs of the elderly Asian participants influenced their dietary intake, specifically during the first two weeks after surgery. They appreciated the support of informal carers as they continued to cope with mobility issues and activities of daily living during recovery.

As the participants pursued their journey of joint replacement surgery, they began to use different coping strategies. Inherent with the proposed theoretical framework of the CCM (Wagner, 1998) and SCT (Bandura, 1997), personal beliefs and self-management determine positive health behaviours and coping strategies. Although some participants felt frustrated and concerned with the associated surgical problems, such as wound infections, gaping wounds related to stress from physiotherapy, urinary infections and constipation, they actively sought treatment from health professionals at health institutions to resolve the problems promptly.

The support from informal carers such as family members and home helpers emphasised the interdependence and social cohesion within the community. Such support helped the participants to better cope during the rehabilitation process and to assimilate back into their usual activities and communities. Filial piety and strong family cohesion in the Singaporean participants' led to positive and supportive recovery at home.

The cultural values of some Chinese Singaporean participants were influenced by the dietary intake of 'Yin-Yang' of healing foods such as *Sang Yu* and strict

avoidance of ‘prawns, eggs and crabs’ within two weeks of surgery to promote wound-healing during the recuperation period.

The three themes that emerged for the ‘recovering’ (postoperative) phase were ‘adapting to an unfamiliar body’, ‘cultural beliefs/practice on the recovering body’ and ‘adjusting to a new body and life’ (see Table 5.2). The associated subthemes were ‘experiencing problems related to surgery’, ‘discovering possibilities and limitations to own body’, ‘Yin-Yang of foods for the recovering body’, ‘getting the body to be in charge again’, ‘adaptation to life with new leg’, ‘appreciative of support from informal carers’, ‘togetherness with family members and friends’ and ‘encouraging others to undergo surgery’.

In this chapter, new codes/categories were also explored until no new codes/categories or recurring codes/categories were found during the process of data analysis. Data saturation was reached with the twelfth participant. Two more participants were recruited, and their data descriptions were analysed to confirm data and theoretical saturation.

The next section describes the theme ‘adapting to an unfamiliar body’. It depicts the elderly participants’ experiences in adapting to an unfamiliar body after joint replacement surgery.

6.2.1 Adapting to an unfamiliar body

This theme describes participants’ experiences of adapting to an unfamiliar body after surgery as they learnt how to cope with surgery-related problems. They began to discover what their bodies were capable and incapable of during their gradual adaptation to their unfamiliar bodies after surgery.

The two subthemes that emerged for this theme were: ‘experiencing problems related to surgery’ and ‘discovering possibilities and limitations to own body’. The following two sections discuss the two subthemes of this emerging theme (see Table 5.2).

The next section describes the subtheme of ‘experiencing problems related to surgery’. It depicts the problems experienced by elderly participants during their initial and subsequent periods of recovery.

6.2.1.1 Experiencing problems related to surgery

Following total joint replacement surgery, some participants experienced problems such as postoperative pain, constipation, numbness, bruises, swelling and delayed healing. They struggled to adapt to their new and unfamiliar bodies as they experienced surgical related problems or complications

During the initial two days of surgery, some participants struggled with uncertainty in managing the pump or ‘morphine pump’ to relieve their pain, or uncertainty in tolerating the unbearable pain. They were unsure whether the pump was automatic or manual, as the nurses only visited their bedsides occasionally. The participants experienced sleepless nights having to tolerate the pain. One female and four male patients reported poor pain management postoperatively.

Hua expressed how she managed the pain:

> So for the first day I pressed [the morphine pump] quite often…not really [having pain], slight only. They [nurses] said, ‘Little pain, you can do [press on morphine pump] already’. So I also worry. If never follow instruction, a little big pain, then how? Cannot stop the big pain then even worse. Just press, every five minutes, press (Hua FC14-65).

Oman expressed his struggles:

> They asked me to press the [morphine pump]…what you call that? Then after I pressed, the nurse said ‘when you press twice, your hands will be itchy’. Then okay, I pressed, I can go to sleep. Then tomorrow morning, I find very painful. Yes, [the nurse] explained everything [managing the morphine pump] (Oman MM1-70).

Boo expressed his tolerance: ‘I don’t really maintain painkillers…I always tolerate until the last minute, maybe that doesn’t work on me’ (Boo MC9-66).

Boo described how he managed his pain: ‘After that, I realised that someone told me you have to press the button there when the pain occurs [level] is too high. I start pressing that thing [morphine pump], so the pain managing is not so good’ (Boo MC9-66).

Ngian expressed his understanding of the pump:

> I didn’t use [the morphine pump] but they [nurses] monitoring the thing [morphine pump]. I know it still inject out some. Those nurses, few hours they come to get the reading. So I know somehow or rather don’t know whether the thing is automatic or not. I don’t know. I don’t press anymore. Because each time they do the reading, two nurses came round the room, one do the recording, another do the reading. So they will count the reading on the monitoring. so I thought the thing is automatic but I’m not sure (Ngian MC5-66).

Boo expressed his struggles: ‘I slept off and on [night of operation]…until the morning. Because the pain is with me. The morphine they gave me I don’t think is [working]. The pain just come you know without any warning, I just scream (Boo MC9-66).

One male Indian participant began to feel the increasing pain after the anaesthesia effects wore off after the operation. He was appreciative when the morphine pump was eventually ordered and set up, as it gave him a restful sleep at night. He was reminded by a family member to take all necessary painkillers to manage the pain adequately after the surgery.

Panu testified his experience:

> At that time, I was a very happy man. I couldn’t feel the pain because of the anaesthetic. But by about four in the afternoon it began to hurt. Then they installed the pump. Prof. X told me 48 hours, I will be on morphine. They set up the morphine pump at 5 ml…at night that was

> not working. The maximum allowed was 20 ml. So I told them it's not working, so they increased to 15. I have a perfect night sleep (Panu ML4-67).

Panu expressed how he coped:

> My wife's brother-in-law in England, he also a doctor. He called me and said 'don't fight back on the painkillers, take the maximum permitted. This is a traumatic thing and you should try to take full medications'. So I said, 'Can you give me everything?' So on the first night, I have the full lot of Panadol, Naprosyn and Gabapentin, Tramadol and then also morphine. The whole lot that worked very well (Panu ML4-67).

One male Malay participant preferred to use the ice pack to relieve pain on his operated knee, although he was advised by the physiotherapist to use a hot pack to relieve pain. He found that using the ice pack relieved the pain on the operated knee at night for a more restful sleep in order to avoid disturbing his wife.

Oman said that:

> The therapy doctor [physiotherapy] asked me to put warm water, but not working. I still use the ice pack—is better. The doctor said warm one. Ice pack for swollen. Warm water to relieve pain. I use hot water, not relieve pain. I use back the ice pack until now. Just now, I very pain, then I put [ice pack], I can go to sleep for a while. Ice pack is very good for me. Pain, but I can walk and take the ice pack and put and use, put it back. Then I put back the ice pack, then I go to sleep. If not, I always disturb my wife. My wife said, 'What…I want to do? You pain what I want to do? Please, please keep quiet'. I said, 'Cannot. Terrible [pain]' (Oman MM1-70).

Some participants were disappointed that they experienced pain on the operated leg for around one month after surgery. The difficulty of not being able to bend or stand for a long duration on the operated leg affected their

routine exercises. The pain occurred suddenly and at any time. One participant was resigned to the doctor's advice that postoperative pain would persist for one to two months.

Mien expressed the pain: 'The wound…the wound pain…painful [when standing too long]' (Mien FC13-66).

Hin expressed his concern: 'That's why I couldn't do…much therapy, not much exercise because it's very painful to bend' (Hin MC8-71).

Boo described his pain: 'When the pain comes, I just grab hold of it [the sides of the knee]. Before I grab hold of it, it stops' (Boo MC9-66).

Huay explained that his pain remains: 'So every day you don't feel comfortable because of the pain. I don't think [pain] is getting less. Still about the same [35th postoperative day]' (Huay MC2-78).

Huay felt resigned to her fate: 'But now you don't know this operation. According to the doctor, I still feel the pain. At least another one to two months' (Huay MC2-78).

Kate described her pain experience: 'Which can occur pretty much any time. And it's really…quite painful [pain at back of right thigh]' (Kate FS7-76).

One male Chinese participant found it awkward to urinate and pass motions when lying or sitting on the bed during hospitalisation. This was not reported for participants who had undergone THR.

Hin described his difficulty:

> Because you know as a patient to—pass…urine….by lying down is very difficult because we're not used to it and hospitalised. I don't 'pass motion [have a bowel movement]', I don't know why. Maybe the stress. Because they [hospital staff] refused…me to go to the toilet.

> They made me sit there, have to pass on the bed. Then I said no, that I can't do it (Hin MC8-71) (underwent TKR).

Two female participants were distressed with the loss of control of their bodies with the increased urge in urination and minimal voiding after the surgery. One participant attributed this to the anaesthesia effects after surgery. The nurse had also explained that spinal anaesthesia may result in loss of urinary control. The participant was disappointed that she had to make frequent calls to the nurses, because it made them angry and impatient. It left the participants feeling helpless with the loss of control of their bodies. Another participant who attempted to urinate after the removal of the urinary catheter was disappointed that she had to be re-catheterised again.

Sui expressed her distress:

> *Zai ji zhui gu* [anaesthesia at spinal region]. Going out, cannot control my urine. The nurse also angry. Because not my fault. So the…one miss….normally one time can pass all the urine, separate four or two times. Few hours urine…the nurse must be angry. I said 'Sorry nurse, not my fault. Because the doc…'. The nurse told me 'this one injection, this one the case like this'. Very angry. 'What you just urine, why you urine?' (Sui FC12-65) (underwent TKR).

Kate expressed disappointment: 'Well, anyway I couldn't go [pass urine]. So they [staff] put it [urinary catheter] back again' (Kate FS7-76) (underwent THR).

One problem relating to the joint replacement surgery was constipation. Two male participants experienced abdominal discomfort and constipation. They received senna, enema and liquid medication to help relieve their constipation. This was not reported for participants who had undergone THR.

Panu described his experience of constipation:

> And also gave me senna. Some tablets didn't work. Took half a tub of fruits, didn't work. Finally, when I couldn't bear the [abdominal]

> discomfort, I asked them. Because everyday you postpone, you make it…worse you know. So they gave me an enema. Actually there's nothing much there. That was instant result that I felt so relieved. I don't know Monday or…third day, very, very…uncomfortable, not the leg. That was the only uncomfortable thing I have (Panu ML4-67) (underwent TKR).

Leng expressed his relief: 'When the pharmacist came to give me the medication on my discharge, I told him of my constipation. I used the liquid medication and it cleared eventually when I came home' (Leng MC3-83) (underwent TKR).

One participant was distressed by the nagging feeling of numbness at the side of his operated knee.

Boo said: 'Numbness—I feel it all the time on this side [knee]. You know, Dr X said…the numbness will be there for quite some time' (Boo MC9-66).

Some male Chinese participants who underwent TKR were concerned about the 'blue–black' bruised appearance of the thigh of the operated leg a few days after the TKR. One participant reported that it appeared after he stopped wearing the TED stockings. Another participant was uncertain whether the 'blue–black' bruise resulted from a recent fall or a knock at the bedside. This was not reported for participants who had undergone THR.

Boo expressed his concern:

> First [previous TKR operation], I did not notice [blue–black on leg] at all. I…went for my surgery for my right leg, I know this thing. This blue–black [bruise] got [occurred] during the operation, I think (Boo MC9-66) (underwent TKR).

Hin explained: 'So when I stopped [wearing the TED] stocking, the third day, second day, third day all [left leg was] blue–black' (Hin MC8-71) (underwent TKR).

According to Leng:

> I have something here [blue–black over right thigh]. Scary! In fact, I didn't notice until a few days after the operation. Why is it so black? It was not there yesterday. I think I fell down. Maybe I knocked the bedside. I don't think so. Not that I can remember (Leng MC3-83) (underwent TKR).

Some participants experienced redness, swelling and pain at the operated area after the operation. They were suspicious and anxious in case there was an infection, and their suspicions were realised when they learnt that there was a mild infection at the incision point on the operated knee, which would be slow to heal.

Sui expressed distress:

> So painful and then so swollen, so red. Double the size of this one, yesterday. That's why I asked Dr X, I said 'any infection or not?' because of pain. My friend…next bed, no pain. Mine [is] so painful, you know (Sui FC12-65).

Huay described the pain and the infection:

> These two days, I feeling there seem to be increment of the pain—a feeling of pain. Just two days ago, we found that it [was] actually infection…[I] went to this nearby doctor, showed him, supposed to change the dressing, and they said that the blood test has a mild infection (Huay MC2-78).

Oman expressed concern: 'I asked about the pain and the swelling. The doctor said that it was normal. A knee operation mostly very late, very slow to recover' (Oman MM1-70).

Several participants were concerned about the persistent swelling, despite being reassured by the doctors that the swelling on the operated leg would subside between two and six months after surgery. They realised that they had to live with the swelling as part of their recovery. One male participant with

left hip swelling after THR did not feel motivated to walk around at home. The participant found that the knee swelling occurred during the later part of the day, and he attributed it to water retention. However, he found that wearing the TED stockings was frustrating because they were difficult to put on. The stockings were too tight and felt uncomfortable.

Hua reported: ‘But yesterday I asked doctor, I said ‘like this, swollen’. He said ‘six months you know, only six months’’ (Hua FC14-65).

Lian explained: ‘The doctor tells me must [wait] two or three months [for swelling to subside]’ (Lian FC11-72).

Niu remarked:

> The only problem haven’t solve is the edema on the legs. I feel uncomfortable [wearing TED stockings]. This [left hip] is swollen up because…you can see that it’s just…I think is edema, because I don’t move around, so Prof. X said maybe have a cold pack can be helpful (Niu MC10-73).

Sui fretful expressed: ‘Like over-strained [during X-ray] that area like that. So the next day was very swollen. Very red, so scary. So red, all swollen’ (Sui FC12-65).

Panu expressed concern:

> Normally, early morning when I wake up, everything’s all right. But then during the day, this swells up. You can see here? According to him, one of the doctor, this is water retention caused mainly by the blood, is able to go down but is unable to come up (Panu ML4-67).

Oman shared: ‘I think because just few days, maybe another few days, may be okay. But I find out a bit swollen. You see, I think a bit swollen [knee]’ (Oman MM1-70).

Some participants were worried that the operative wound was not healing well, or that there was gaping between the stitches, after undergoing THR or TKR. Thus, they were hesitant to participate in exercises during physiotherapy sessions because they were fearful that the wound would gape further and possibly burst at the stitches. One participant wondered whether her hip wound infection could have been prevented if intravenous antibiotics had been used for a longer period.

Hin expressed his worries:

> Yesterday I went down [polyclinic], the wound is expanding. You see, when I went to the polyclinic to do my dressing. Because…you know a gap in between the stitches. So yesterday, when he [physiotherapist] seen the wound…expanding. I said this: 'second day, if my stitches burst, who's going to take the responsibility'? He said 'definitely it won't burst' (Hin MC8-71) (underwent TKR).

Kate testified: 'Well it…[hip wound infection] was getting bigger' (Kate FS7-76) (underwent THR).

Kate expressed concern: 'In fact, that [intravenous antibiotics] may have saved me from infection [hip wound] developing…My daughter and I had hope to continue antibiotic for longer than…three days' (Kate FS7-76) (underwent THR).

One participant was concerned about the delayed healing because of the wound infection, despite visits to the polyclinic to dress the wound. With the increased concern over her worsening knee wound infection, the participant decided to visit the A&E department, which resulted in being admitted for further treatment. One participant explained that her wound became septic because of remnant nylon whiskers (sutures) left on the hip wound. She was glad that she was given Amoxiclav (antibiotics) during a visit to the polyclinic.

Hin described:

> Told me quite serious. He [doctor]…said 'anyway, I'll give you a drip of antibiotic' [after readmission to hospital]. Then there is a redness. So I go to A&E, you see. So from there, they…the bone specialist…said 'you have to admit'. He said 'this is nearly a month, it still [has not] healed'. So I readmit. The wound is…quite big you know. Actually, I asked for just…antibiotics, then I stay at home. He said 'no…this is an infection already' (Hin MC8-71) (underwent TKR).

Kate expressed her concern:

> Dr X said that they had found that it [incision] will get infected with this particular closure. Yes, infection related to the sutures. Now I had noted some nylon whiskers in the wound when it started going septic. So I got those out. But then later I developed [a] wound infection [in the] upper end [of] the wound. So I went down to polyclinic and I was given a week's course of Amoxiclav, which I'm just finishing. I just finished today (Kate FS7-76) (underwent THR).

Some participants were apprehensive and frustrated in coping with the bleeding or oozing from the operated knee, and they had to limit their movement and mobility after surgery. The general practitioner (GP) and nurse at the polyclinic advised that the bleeding was normal, despite using a different dressing material to reduce inflammation. However, the participant was adamant that the bleeding was not normal and wanted urgent attention. The participants felt frustrated that their views were disregarded by the health professionals, and they felt apprehensive about the slow progress of their wounds healing. The disagreement and concern over the wound infection led one participant to visit the A&E department to seek urgent medical attention.

Mien reported her concern:

> But yesterday, the whole day cannot come down [from bed]. Because keep on bleeding, so I have to stay on the bed. Because I put my leg down, the blood will come down from here. Yesterday changed

> [dressing], keep on bleeding, so take out and let doctor see' (Mien FC13-66) (underwent TKR).

Hin expressed angrily:

> My observation, the first one, when it bleeds quite heavy, I get the GP over…actually I asked for referral letter to A&E. Then the GP in polyclinic said this normal. I said 'to you…to me is not normal' (Hin MC8-71) (underwent TKR).

Hin described his encounter at the clinic:

> At first I told the nurse that is inflammation. They said, 'No'. But the next day is all wet you see. I know is the bleeding. Because that [plaster] is to prevent…inflammation. The recommendation is every three days to renew the dressing (Hin MC8-71) (underwent TKR).

It was very discomforting for one male Malay participant, who felt giddy and nauseous when climbing stairs and walking during the physiotherapy session. As a result, he was unable to participate effectively in the physiotherapy session. He attributed the problems to his weak body constitution or ageing. A female Chinese participant felt sick, sleepy, itchy and nauseous because of the side-effects of the morphine.

Oman described:

> Walk in the ward, I think a few steps only, I feel very giddy and vomiting. I tried to walk, and then to climb the [stairs]…I cannot do it. Then they asked me to walk. Straight away, I giddy. I said 'I'm sorry' (Oman MM1-70).

Hua similarly expressed: 'Second day, I find that no good this thing [morphine pump]. Make me very sick. The morphine make me vomiting, sleepy and also like itchy. Have [vomited] two to three times. Can't eat' (Hua FC14-65).

Oman was surprised: ‘Until now, I am surprised why I cannot appetite…vomiting and giddy. Maybe I’m very weak or what? Old or what maybe like this?’ (Oman MM1-70).

A male Indian participant found it worrying that taking different painkillers increased his body weight by at least one kilogram during hospitalisation, despite reduced food intake because of the bland hospital diet. The participant suggested that healthcare professionals should conduct medical research to find out whether the consumption of painkillers could increase body weight:

> I switched to Voltaren. Voltaren is not as effective as Tramadol, but less harmful. Even now they gave me so many painkillers. I stayed in hospital for four nights and ate the hospital food because I told my wife I don’t want any more home-cooked meal. I want to eat hospital food. I want to lose weight, but I didn’t lose. You know…hospital food, bland, no oil and they gave you small little rice. I have never eat more than half of that. And yet I put on [weight]. I never had a snack, no drinks, no nothing. Yet put on a kilogram because the painkillers in my case. So that’s a worrying thing. So now what do I do? I just can’t help it. I just go through. Just take the painkiller as much as I can. Last night I cut down by one. It didn’t work. I don’t know whether the medical research but in my case [put on weight because of intake of painkillers] (Panu ML4-67).

In this study, participants experienced problems following surgery because they struggled to adapt to an unfamiliar body. The varying levels of knowledge and uncertainty regarding pain management and the use of devices such as morphine pumps, ice packs and hot packs resulted in some participants tolerating high levels of pain during the first two days after surgery. There were no reports of poor pain management from participants who underwent THR.

Non-experimental studies involving patients undergoing major orthopaedic or vascular surgery (Niemi-Murola et al., 2007) and THR (Eisler, Svensson, Tengstrom & Elmstedt, 2002; Stomberg & Oman, 2006) reported that several

participants suffered severe pain experiences in the early postoperative period, although postoperative medication was offered as part of their quality care. In a study by Niemi-Murola et al. (2007), 28 per cent of participants reported severe pain during the first postoperative day, and 39 per cent reported pain on the first postoperative night. In a study by Stomberg and Oman (2006), 38.3 per cent of participants reported their highest pain experience on the first postoperative day, and 34.3 per cent reported pain on the second postoperative day after THR surgery.

In this study, the lack of expression in relation to pain experience among the multi-ethnic Singaporean elderly participants could have been attributed to accepting pain as part of surgery. Chronic pain may be under-reported in Singapore population as they may not be as vocal as the Western population (Khalik, 2009). Being assertive or complaining openly is considered poor social skills, as it is customary to be inconspicuous. Socially, Asian patients observe status differences between people and avoid placing demands on healthcare professionals, particularly doctors and nurses (Free, 2002). In a quantitative study by Hobara (2005), Japanese participants believed it was inappropriate to express pain freely compared with Euro-American participants. There was a similarity in the expression of pain among elderly Singaporeans in this study and the Japanese participants in Hobara's (2005) study, where stoicism was inherent and the pain experience was accepted as part of the surgical outcome.

In comparison to other daily activities during hospitalisation in this study, increased pain experiences were reported with movements on the bed, rising from the bed and during physiotherapy training. Similarly, a qualitative study conducted in Sweden among participants aged 55–75 found that 'bed-bound' movements, standing out of bed and physiotherapy exercises were very painful during the initial days following THR surgery (Joelsson et al., 2010).

In this study, one female and four male patients reported poor pain management postoperatively because of anxiety and uncertainty in using the morphine pump. Similarly, Stomberg and Oman (2006) found that female

participants (70 per cent) were more satisfied with pain management compared to males (61 per cent). However, several studies found that females experienced a higher level of pain (Jackson, Iezzi, Chen, Ebnet & Eglitis, 2005; Roe, McNamara & Motheral, 2002). Fielden et al. (2003) recommended appropriate postoperative pain management to improve sleep quality and QOL.

The coping of basic needs such as urinating and defecating within the confines of the bed, proved to be stressful for the participants, as they struggled to adapt to an unfamiliar body during this recovery period. Some participants testified to feeling distressed with the loss of control of their bodies as they experienced frequency in the urge of urination with minimal voiding after surgery. Their apprehension increased with further complications such as oozing, bleeding and septic wounds on the operated leg. These complications slowed down the process of healing and recovery, and they dampened participants' hopes of regaining their lives. No studies have addressed participants' concerns about their basic needs during the recovery period of joint replacement surgery. Therefore, this is the first study to address elderly participants' concerns about their basic needs, anxiety regarding the loss of control of their urination and defecation and progress of their wounds as they experienced their new bodies during the recovery period.

The next section describes the subtheme of 'discovering possibilities and limitations to recovery'. It depicts the elderly participants' experiences of discovering possibilities and limitations to their recovery.

6.2.1.2 Discovering possibilities and limitations to recovery

Some participants discovered possibilities and limitations to the recovery of their bodies after surgery. They believed that having a positive outlook helped them to cope more positively. They began to discover the possibilities and limitations of their body movements during physiotherapy sessions and exercise regimens at home as they constantly adapted to an unfamiliar body during the recovery period.

At times, some participants were uncertain whether their new body could cope with exercises and living at home after their surgery. Some participants were overcome with a fear of falling and its negative consequences, such as breaking the knee, cracking the bones and opening the wounds, as these would lead to another operation, which would be expensive and painful.

Two participants found that having a positive outlook in facing their challenges enabled a positive recovery and healing from their total joint replacement surgery. Some level of pain was accepted as part of the surgery. A positive attitude towards disciplined participation in exercise was an important component of motivation in the facilitation of their recovery.

Leng testified: 'Because if you have positive attitude, you are cheerful…joke with them and that helps. I saw some other patients were very depressed and all that, not doing that well. This is part and parcel of the recovery' (Leng MC3-83).

Hin expressed: 'Because as I said…have an experience that when any operation you're bound to have pain, but pain, that pain is very low' (Hin MC8-71).

Hua explained the need to exercise:

> For me, is for my own good, okay. [Prescribed exercises] keep me busy and also is good for me. Then if everything depend on the doctor, the doctor already do their part, then you never make effort, then this…the muscle never build up (Hua FC14-65).

Boo stressed the need to exercise:

> I think physiotherapy is very important. You need to do exercise everyday. Because I went to the physio, I saw some very old ladies cannot bend their knee because they…maybe they think…I'm just old already, I don't need to do all these exercise. But that's a wrong way of thinking. Whether you are old or young, you still have to exercise. Then you will be better (Boo MC9-66).

Boo described his exercise routine: ‘Recover…recovery, I exercise. I think that’s a very important thing. So I think physio helped a lot [in walking and straightening his leg], so I will do the exercises in the morning straight away’ (Boo MC9-66).

Panu testified to the importance of exercise: ‘I would say I’m pretty disciplined about this matter…is very important to get through this, and have to return to normal life; otherwise, the whole exercise was a waste of time’ (Panu ML4-67).

Huay found the exercise stressful:

> I feel that as long as you walk, whether you walk inside or outside, going out—of course I tried to go out whenever possible. I just want to make sure the time increase. It not only takes time but I feel that I have to force myself. Before, I have time to rest, I have to do exercise again. ‘What do I have to do?’ The doctor said, ‘Do exercise. Next time you see me, I am sure your bone is back’ (Huay MC2-78).

Boo stressed the need to recover fast: ‘I do it [exercise]. I do it in the morning and again in the night. Because I want a fast recovery you see, because I need to work’ (Boo MC9-66).

Lian emphasised: ‘I like exercise. Exercise can encourage you to walk’ (Lian FC11-72).

Niu expressed: ‘Exercises—I think helpful is to strengthen the muscles’ (Niu MC10-73).

Huay explained the need to do her part: ‘Yes. I still remembered he said—I do my part 50 per cent, the operation very good. He showed me the X-ray is very straight, 50 per cent is physiotherapy help me to improve’ (Huay MC2-78).

Lim testified:

> But I do concentrate on two things, which is because of my right knee—the first experience where I took it quite long to really get it straighten, so I tried to tend to focus more on exercise straightening the left [leg]. So I know how the exercises were. It helps. I need a drill [refresher] (Lim MC6-72).

Three participants were concerned about the need to place more weight on their other leg (the compensating leg) during mobility, as it would cause deterioration on the compensating leg.

Niu explained:

> And only yesterday [34th postoperative day], then I understand that actually I can put weight on this operated leg. Because this one is, within first three months, the left side [hip] can only bear 50 per cent [weight]. [Doctor] said maybe because depend too much on the right, so you feel painful. Maybe now with the left recovered, then everything is balanced. Then may be relieved of the workload of the right [hip]. I hope maybe in one to two weeks' times I can do without it [walking stick] (Niu MC10-73).

Leng shared this concern about the compensating leg: 'Then the left knee start to hurt again and become worse because now I have to favour [put on less weight] the right knee because of the operation, so I use my left [leg] more' (Leng MC3-83).

Oman similarly expressed:

> I feel on the right side [right knee] now feel because using a lot of right side lately. Now feel the pain down here [right knee]. But left one was worst. That's why they operate me on the left one. But now after this, I use lot of right leg, you see. Now, sometimes I feel very pain [right knee] (Oman MM1-70).

Some participants acknowledged that they should not rush their bodies to recover in a short timeframe, as time was essential to their recovery. They were aware of the need to strictly adhere to the exercise regimen as advised by the physiotherapist to ensure a positive recovery. One participant with prior experience of TKR emphasised the importance of strict exercise adherence. Some participants were pleasantly surprised with the fast pace of recovery and the absence of pain during hospitalisation. Upon seeing other patients walking independently of the walking stick during physiotherapy, some participants were motivated to take an active part in their recovery to gain independence in mobility.

Boo said:

> I can walk, climb up the stairs—everything. This thing takes time, that's what my doctor said takes time. You cannot force, you do some exercise you know, those physio do some exercise, better. That morning—I woke up sometimes I feel here [operated knee] you know, is very tight (Boo MC9-66).

Panu similarly shared:

> In a sense, when I was first introduced to the exercises, I couldn't easily adjust to them and I thought it would take a long time before I can get adjusted to them, but turned out the very next day I could do the whole thing. But it's very exhausting, very tiring you know. You need to take a few break[s] in between (Panu ML4-67).

Panu expressed difficulty:

> Many of those exercises were difficult for the first time. There is one where you lean back on the wall and go down and up. Oh! it was very frightening the first time. But I take the exercises very seriously. I don't cheat, I don't (Panu ML4-67).

Leng explained the rigour of the exercises:

> I meant I could bend up to 100 degrees, 100 plus. Before the 17th April, it was about 87–90 degrees. I was working on my level-one

> exercise. She asked me to do more exercises and use hot compress to loosen my thigh muscles and tendons (Leng MC3-83).

Lim described his adaptation to exercises:

> But I do concentrate on two things, which is because of my right knee—the first experience where I took quite long to really get it straighten, so I tried to tend to focus more on exercise straightening the left [leg]. So I know how the exercises were. It helps. I need a drill [refresher] (Lim MC6-72).

Lim described his mobility progress: 'In the last day of the [hospitalisation]…today let's try walking without stick. So I walked without it' (Lim MC6-72).

Leng expressed surprise with his recovery: 'I was quite surprised myself [at the pace of recovery]. I'm very happy. In fact, I'm quite surprised that I have [made] such a full recovery. I meant there was no pain at all. Not even a pinch' (Leng MC3-83).

Niu expressed hope: 'I hope maybe in one to two weeks' times I can do without it [walking stick]' (Niu MC10-73).

Ngian testified: 'I saw him do exercises, he never carry anything—walked here and there. But I really admire this guy' (Ngian MC5-66).

One participant took her prescribed painkillers consistently so that she could participate fully during physiotherapy.

Hua explained the need for painkillers: 'That is the reason why they give painkiller. Otherwise, how to do it. Pain—you won't be able to do it [exercises]' (Hua FC14-65).

Some participants disagreed with the physiotherapist on overdoing exercises during the early period of recovery. They were adamant that too much movement of the legs during exercise would stress and break the suture of the operative wound, so they limited their leg movements to facilitate wound recovery. They were further discouraged to exercise and mobilise with the worsening of the wound of the operated leg with the presence of redness and swelling. These challenging experiences limited the recovery of their bodies.

Boo related:

> So I told after I re-admit, I told the…nurse there that I cancel the…physiotherapy session. They asked me what is the reason. Because of the physiotherapy I have to re-admit again. He [physiotherapist] said that is not the case. I said 'this my personal experience, because is on joint, you know'. When you make a lot of movement, this common sense will tell you, no need to have any medical knowledge. Knowledge will tell—general knowledge will tell you…When there's wound movement of the joint, they are bound to have this. So they disagreed with it. But anyway, I said 'if you won't cancel it, I won't attend'. So get the doctor, the doctor at the physiotherapy, the one who in charge of the physiotherapy said 'you have to do' I said 'no'. The reason I refused to do is that my wound become worse (Boo MC9-66).

Boo expressed concern about the physiotherapy: 'Why I refused to go [to] physiotherapy because when the joint, when you move a lot…the thing [suture] will burst more' (Boo MC9-66).

Boo stressed his priorities: 'Because the exercises may be…too stressful. My priority is to get my wound cure first' (Hin MC8-71).

Boo asserted: 'Heal first before doing the physio. So I don't want to have any more physiotherapy to affect my wound' (Boo MC9-66).

Boo explained: ‘I never push myself, you know. If I can’t do it [exercises], I will stop definitely. If I can do it, I’ll do it’ (Boo MC9-66).

Hin expressed concern about the bleeding:

> I did not do the exercise [at home] until I go to the physio. The physio said that you have to do it even though with [bleeding on incision]. So when I saw the blood coming out [from incision], then I stopped exercising on my bed. So the next morning when I wake stiff, can feel it stiff (Hin MC8-71).

Lian expressed concern: ‘Blood, very painful. I said, “Aiyah! [expression meaning ‘goodness’] *Si* [die]”, call me to exercise. I said cannot. Cannot, *aiyoh* [expression meaning ‘my goodness’], very painful, cannot move, then how to do. At night I dream my bone broken (Lian FC11-72).

Hin stressed:

> Because this [redness and swelling on left knee incision], two nights, I don’t exercise. Because normally in the bed, when I wake up or in the evening, I used to do the exercises what the physiotherapist give me the list (Hin MC8-71).

Oman reported:

> My wife always grumbled that I do not go down for fresh air or sun. Ok, I go down. I met people. Very painful. Came back. Now swollen here, you see [pointing to the left knee]. I don’t go down anymore (Oman MM1-70).

Some participants were worried about the stress on the compensating knee or hip resulting from the long hours of exercises and physiotherapy sessions. Although advised by the physiotherapist to exercise on a stiff surface at home, one participant could only exercise on his soft bed surface, as he had difficulty trying to get up from the hard floor afterwards. The stress on the other leg and difficulty exercising on hard floors at home posed limitations to the recovery.

Niu shared: ‘And it also affects a bit on my right side [hip] because my right side is not good also. So if I exercise long, actually I can also feel the taxing…on my right [hip]’ (Niu MC10-73).

Sui stated: ‘I was very worried. Whenever I was sent for some physiotherapy, I feel very worry because I could hardly move my leg’ (Sui FC12-65).

Leng explained:

> There was a series of exercises which I need to do on a stiff base. I do not have a stiff bed at home. So I was doing it on my bed, which was too soft. The effect was not that great, so I went onto the floor. Once I get on the floor, I found difficulty getting up (Leng MC3-83).

Sui expressed concern about the increasing pain with therapy: ‘But how come they said therapy supposed to reduce…supposed to sort of make your leg a bit more flexible, but for my case it seemed to make the pain more worse’ (Sui FC12-65).

Some participants felt tense and worried from the moment they were seated on the wheelchair and getting ready to be pushed to their physiotherapy session. As they began to adapt to their unfamiliar body, they were uncertain whether their bodies could participate in the series of exercises. They were relieved when they were pushed out from the physiotherapy area after the scheduled exercises. Over time, the tension dissipated and the participants looked forward to subsequent physiotherapy sessions.

Sui felt stressed by the physiotherapy sessions: ‘Whenever I sit the wheelchair…I feel tensed already. I was very worried whenever I was sent for some physiotherapy. I feel very worry because I could hardly move my leg. The whole leg seemed to be so heavy’ (Sui FC12-65).

Sui expressed that it was a drag doing physiotherapy: ‘I just drag, drag going there. When it’s over, I’m very happy. They push me out, I look forward to finishing…to the end’ (Sui FC12-65).

Ngian described his difficulty exercising: ‘Because very heavy, your leg very heavy. Secondly, pain on [the] knee. So your mind can’t concentrate. For example, they want you to lift up your leg, you want but it go out’ (Ngian MC5-66).

Two participants compared the slow and limited progress of their mobility with other patients who could bend their operated legs during the physiotherapy sessions. They believed the physiotherapy sessions were too short and inadequate. They were careful not to push their limited bodies after surgery, thereby affecting their recovery progress.

Sui expressed disbelief regarding how well others coped: ‘But how come…some other patients they went through it so smoothly? When they went…for the therapy, they’re so happy. Then I was still so worry when I go therapy’ (Sui FC12-65).

Sui expressed concern: ‘Not that good. Just try but not that good. The ankle also…you know. The ankle, some people can do a lot. I cannot [sixth postoperative day]. They can bring the leg in so much. I cannot’ (Sui FC12-65).

Sui wished she could perform better:

> And so painful and so swollen. I saw the other patients, they could bend…their legs and walk here, walk there. I wish I could do like that. I said why? What happened to myself? Why was my recovery so slow? (Sui FC12-65).

Leng found it hard to cope:

> This time was another physiotherapist and I told her why…the four days doesn’t give me enough time to really exercise because I dare not press on my wound. In my physio, I exercise but dare not stretch too much. So, there was not much…progress. I have to see the physio

> again on the fourth day. They didn't give me enough time to complete the exercise. The time was a bit short (Leng MC3-83).

Sui felt helpless: 'When I heard this morning that I will be discharge tomorrow Sunday, I was quite worry. In fact, before that I was [thinking]…how am I going to carrying on? I mean this…condition still not…I'm still very helpless' (Sui FC12-65).

Some participants were very cautious about their mobility during their period of recovery. They depended on supportive aids such as walking sticks and frames to give them more confidence in mobility. They were mindful to avoid crowded or public places such as Buddhist temples in order to prevent falls. Participants were fearful of falling, as it would mean breaking the knee, cracking the bones, opening gaping wounds or even having another operation, which would be expensive and painful.

Mien stated: 'Not going down there [Buddhist temple] because it's crowded. If fall down is very dangerous because have to do again. We will suffer' (Mien FC13-66).

Leng expressed his fear of falling:

> I just wanted to strengthen my leg first because I can feel that there is a difficulty walking around. If I walk or climb excessively, I may 'tumble'. I'm afraid of this. Because I was told that if I 'tumble', I may break my knee—the hinge. That is an expensive and very painful operation. I don't like this sort of thing. I'm very careful. I am a low-pain fellow (Leng MC3-83).

Hua expressed caution:

> I think because due to no strength at all. I also scared fall down you know. So when I want to walk around, I got to ask my maid to follow me. Because accidentally I fall down that will be very…bad. So that's why when my maid is around I said 'watch on me. I will walk a few steps like this with the walking stick' (Hua FC14-65).

Ngian stated:

> Almost one month plus already, everything go smoothly. Only thing at present, let's say if I go outside without a walking stick, I still not like secure myself. Without walking stick, I can't. I still have no confidence myself (Ngian MC5-66).

Lim stated: 'Because [using walking frame is] better. If I fall, I'll get into trouble' (Lim MC6-72).

Oman shared:

> Then 'but if you go outside', they said, 'you must use crutches' [walking frame]. Because afraid of fall down. And then yesterday I go for wedding, I saw my friend there. He said his sister already operated for few years, fall down, operate again. The bone cracked (Oman MM1-70).

Boo expressed:

> Because public places, you know, sometimes you have to be careful. Because in my case, you cannot fall. I'm trying to be okay…maybe I'm 60 per cent okay. I still need about 30 per cent, then I'll be more stable. I carrying along with a walking stick (Boo MC9-66).

Lian described: 'I walked. Because also they [I was] scare[d]. The road not so nice, not so nice. *Wan wan chee chee zhe yang te lu* [the road is very winding]. *Pah* [fear] fall down' (Lian FC11-72).

Leng exclaimed: 'I was told not to fall. I don't want to fall. I don't want the wound to open up again. I'm very careful' (Leng MC3-83).

Participants discovered and adapted to the possibilities and limitations of their unfamiliar bodies as characterised by their expressions of fear, uncertainty and hopefulness as they tried to regain their lives after surgery. The personal belief of having a positive outlook was testified to be a key influence in motivating some participants to be proactive in navigating their trajectory of recovery.

During this phase, they discovered possibilities and limitations of their unfamiliar bodies. Personal beliefs motivated these participants to focus on the progress of their recovery, take ownership and actively participate in rehabilitative exercises at the hospital and home. In discovering the capabilities and limitations of their bodies, some participants engaged with specific exercises and paced their mobility to avoid possible complications in the trajectory of recovery.

Similar findings were made in some qualitative studies on adult (Fielden et al., 2003; Smythe, Larmer & McNair, 2012) and elderly (Grant et al., 2009) patients who underwent THR surgery. They regarded their discharge from the hospital as a period of transition characterised by hopefulness and uncertainty. Participants moved from their introverted focus on pain, disability and limitations to a sense of self-awareness of their progress (Grant et al., 2009). As this study highlighted the need to address elderly participants' concerns about coping after being discharged, one study (Smythe et al., 2012) highlighted the importance of instilling confidence in patients undergoing THR surgery during the recovery period so that such instinctiveness would be part of them as they continued their journey to regain their lives after surgery. Another qualitative study (Gustafsson et al., 2007) on elderly patients undergoing joint replacement surgery highlighted that becoming able-bodied included gaining new experiences, such as learning how to walk independently and coping with new routines after surgery.

The possibilities and limitations of participants' bodies during the critical period of adaptation to the recovery was a challenge for some participants. They were constantly challenged to achieve a balance between the instructed and scheduled exercises given by their physiotherapists and the capabilities of their bodies. The elderly participants experiencing redness, swelling, bleeding and breakdowns of their wound became sceptical of the advice they received. Due to the uncertainty of their functional possibilities and limitations, some participants faced a dilemma in coping with their level of mobility and social activities to prevent further complications to their recovering wounds. The participants underwent constant mental and social adjustments as they

attempted to comprehend, internalise, and weigh up the possibilities and limitations of their new bodies in order to achieve a balance.

The next section describes the theme of 'cultural beliefs/practices on the recovering body' and the two subthemes. It depicts the elderly participants' cultural beliefs and practices, as well as their appreciation of support from informal carers during their recovery period (see Table 5.2).

6.2.2 Cultural beliefs/practice on the recovering body

Cultural beliefs and practices were testified to influence some of the elderly Chinese participants' perceptions undergoing joint replacement surgery, in particular, the focus on the consumption of culture-specific foods that could heal or impair the recovering body of the participants with the subtheme of 'Yin-Yang of foods for the recovering body from surgery'.

The next section describes the subtheme of 'Yin-Yang of foods for the recovering body from surgery'. It describes the influence of cultural beliefs and practices on the consumption of healing foods and on the abstinence from foods that impair the recovering body from healing.

6.2.2.1 Yin-Yang of foods for the recovering body from surgery

Some Chinese participants adopted traditional health beliefs and TCM in their food consumption for their recovering bodies. Some participants consumed herbal and/or *Sang Yu* (snakehead fish) soup to aid wound healing and the recovery of their bodies. However, they were mindful of the proper timing to consume *Sang Yu* soup, prawns, eggs and crabs, as consuming these foods within two weeks after surgery would be detrimental to wound healing and further predispose their bodies to keloid formation.

Two Chinese participants consumed *Sang Yu* soup because they believed that it would aid wound healing. Both participants also enjoyed partaking of herbal and fish soups as part of their routine diet.

Lim shared his food beliefs:

> Being a Cantonese so…drink more soup. *Dun Tang* [herbal soup] is very important. Since *Sang Yu* [snakehead fish] is supposed to help [wound healing], must as well you go and have it. And because we enjoy the fish soup anyway (Lim MC6-72).

Mien shared her belief: '*Sang Yu* to close the wound. After one to two weeks, can take *Sang Yu*' (Mien FC13-66).

Some participants believed that certain foods, such as prawns, eggs, crabs and *Sang Yu*, which are classified as 'poison foods', would impair wound healing if taken within two weeks of surgery. One participant who consumed some prawns as part of her diet two weeks after her surgery was surprised that her wound was still oozing. It was believed that *Sang Yu* would cause wound breakdown and keloids if taken too early during the convalescence period.

Mien said:

> No, no. Not anymore. I [am] very scared [eating prawns]. This one [wound] cannot (stop bleeding). Maybe I take some poison food like eggs, prawns. Every time when we do the operation, all that, cannot take any prawn, crabs, all that. I just take a bit only, then like that (Mien FC13-66).

Mien expressed: 'Because last time [previous TKR] I never take two weeks, then take out the stitches is very okay. Very nice. But this one' (Mien FC13-66).

Mien expressed her worry: 'Earlier I believed. But when after discharge I come back about two to three weeks, two weeks already. Then I tried to take some prawns but cannot, still oozing' (Mien FC13-66).

Lian described her food abstinence: ‘Because operation, the old lady [traditionally] said cannot eat eggs and chicken, no good. Because *ni* [you] just [have] operation, you must [wait] until recovered, then you can take. Not recovered, you cannot take’ (Lian FC11-72).

Lim explained:

> So there are people who told us that cannot have *Sang Yu* too early, you know. If you have it too early, the inside is still not healed, but outside sealed, so you end up with…sometimes the wound [opening up again] (Lim MC6-72).

Lim affirmed: ‘The typical Chinese people will believe that *Sang Yu* will…if you give it too early for a recovering person…leave keloids in the wound’ (Lim MC6-72).

In contrast, two Chinese participants placed their trust in mainstream, or modern, medicine rather than traditional health beliefs and TCM. They believed that using antibiotics and sterile practices in modern medicine was necessary to facilitate recovery. One participant denounced his belief in traditional health beliefs and TCM, as he was Western-educated.

Lim remarked: ‘I will take it [cultural belief of food on health] with a pinch of salt. I think modern medication play much…bigger part. Antibiotics and the cleanliness, anti-infection and all the procedure’ (Lim MC6-72).

Leng explained: ‘I am English-educated. I was brought up in English and dialect. I am more Anglophile [fond of English culture], so I believed more Western medicine’ (Leng MC3-83).

TCM is central to China’s traditional health beliefs regarding health and sickness. According to Yifang (2013), a cornerstone of TCM is the theory of ‘Yin-Yang’, an ancient Taoist philosophical concept based on two fundamental forces or energies that are ever-opposing and supplementing each other (Singapore Health Services, 2007; Yifang, 2013). Yin is associated with ‘cold’ elements, while yang corresponds to the ‘hot’ elements within the body.

When balanced, these energies enable the free flow of the vital life force called *qi* (Singapore Health Services, 2007; Yifang, 2013). If imbalances occur, TCM focuses on restoring the equilibrium through the use of foods, herbs and other methods (Yifang, 2013).

In Singapore, there are more than 20 Chinese dialect groups in the local Chinese community (Lee, 2000). In particular, Cantonese participants placed higher importance on *Dun Tang* (herbal soup), which they practice as part of their daily diet routine. It is important for health professionals to understand the cultural beliefs and practices of their patients in order to closely collaborate with them during their patients' recovery period.

No studies have discussed Asian cultural beliefs regarding the 'Yin-Yang' of foods for the recovering body after surgery. Therefore, this is the first study to provide insights into participants' cultural beliefs regarding foods that promote or impair recovery and healing after joint replacement surgery.

The next section describes the theme of 'adjusting to a new body and life again' and the four associated subthemes. It depicts how the elderly participants coped with their new bodies and lives again after undergoing joint replacement surgery (see Table 5.1).

6.2.3 Adjusting to a new body and life again

The elderly participants began to adjust to their new bodies and lives after undergoing joint replacement surgery. They had anticipated being in charge of their bodies again, and they looked forward to a time of togetherness with their family members and friends after surgery. Some participants became willing advocates in encouraging others to undergo joint replacement surgery to get their lives back.

The first subtheme 'Getting the body to be in charge again' was described by the participants' as being a gradual adaptation to regain control of their bodies

after surgery. The second subtheme ‘Adaptation to life with new leg’ described the participants’ adaptation to the new leg in the recovery of their bodies after surgery. The third subtheme ‘Appreciative of support from informal carers’ described the relational role of the family members and home helpers constituting ‘appreciative of support from informal carers’, to enable a positive recovery Their strong sense of independence and resilience was seen in their reluctance to be supported by their informal carers. The fourth subtheme ‘Togetherness with family members and friends’ described the sense of anticipation for a new life with their family members and friends upon recovery from surgery. The fourth and last subtheme ‘Encouraging others to undergo surgery’ described some participants’ positive encouragement towards prospective people with osteoarthritis undertaking surgery to reduce their long suffering of pain and disability.

The next section describes the subtheme of ‘getting the body to be in charge again’. It describes how the elderly participants gradually adapted to their new bodies in order to regain control after surgery (see Table 5.2).

6.2.3.1 Getting the body to be in charge again

Some participants began their journey of adjustment to a new body and life after their joint replacement surgery as they expected an independent body in one to two months’ time. One participant discussed his QOL after his surgery, as well as how he enjoyed regaining his mobility and independence, losing the pain and getting back to normal activities.

Ngian remarked: ‘Take another one month, you’ll totally forget everything’ (Ngian MC5-66).

Boo expressed: ‘As soon as possible. You see like me, is just one month over, about six weeks you see. I’m back to normal’ (Boo MC9-66).

Sui expressed her expectation: ‘I may take another few more months to fully recover and gain full confidence…going out on my own’ (Sui FC12-65).

Huay expressed hope:

> Quality of life still…because…a lot of things you are restrained from doing it. Your mobility is not back, you don't feel the quality of life. Not so easy, it takes some time. Until you don't really feel the pain, then you feel, once still feeling the pain, you don't feel the quality (Huay MC2-78).

Some participants strived for independence in managing their bodies and lives once again, as they did not want to 'trouble' their family members who needed to work during the day. They valued independence so they could cope with the activities of daily living. One female Caucasian participant had lived an independent life along with a home helper (maid) since her spouse died eight years ago.

Boo stressed:

> I can manage myself, I can manage definitely. That's [moving around] helped me a lot also in a way. I don't lie in bed all the time because nobody is with me. You know, they're working, all of them are working. So I cannot say you don't go to work today, if not you accompany me, cook for me. You have to take care of yourself. Take care of your body, take care of yourself; otherwise, you know, it is a bit difficult (Boo MC9-66).

Kate stated: 'I value it [independence] but he [spouse] died at home [eight years ago]. I got used to being independent' (Kate FS7-76).

Panu explained: 'Gain more independence. Liberty to run a normal life, I'm not trying to pick up a ballet dancer or a sportsman. I want to be able to walk, that's all' (Panu ML4-67).

One participant acknowledged the slight improvement in his new body and life after surgery. However, he was disappointed because he had expected more improvement than what he currently experienced.

Panu stated: ‘It [life] does improve a little bit but this is not enough, I expected to be a lot more than this’ (Panu ML4-67).

This study has uncovered a strong desire among elderly participants of ‘getting the body to be in charge again’ as they continued to adjust to a new body and life during their recovery from joint replacement surgery. It was a challenging period of adjustment for the elderly participants as they strived for independence. Some participants who hoped to return to their usual activities in around two months were disappointed with the slow progress of mobility.

In relation to mobility, similar findings were made in a qualitative study in which elderly participants who underwent joint replacement surgery looked forward to regaining their mobility and independence and returning to their usual activities and socialisation afterwards (Perry et al., 2011). In another qualitative study, elderly participants undergoing joint replacement surgery were more adjusted to their new bodies at a new level six months after surgery without further physical and mental concerns (Gustafsson et al., 2007). In the same study (Gustafsson et al., 2007), participants could not remember living with an unreliable body for several years, as they used their physical, emotional and intellectual skills to adjust to their new bodies. In the current study, there is a need to explain the recovery expectations of elderly participants, along with their individual progress of recovery, in order to set realistic expectations of returning to their usual activities.

The next section describes the subtheme of ‘adaptation to life with new leg’. It describes how the elderly participants adapted to life with a new leg during their recovery from their joint replacement surgery.

6.2.3.2 Adaptation to life with new leg

Shortly after the joint replacement surgery, the participants began to adapt to life with their new legs. One participant who underwent THR surgery found that the strange, high-pitched sound of ‘pebbles’ from her osteoarthritic hip

had disappeared after surgery. Another participant felt that he had a new lease on life because he could walk again with his new leg and just a walking stick.

Kate felt relieved: 'I was getting noises coming from my hip which sounded to me like "pebbles" on my back, high pitch. Anyway those noises have gone' (Kate FS7-76) (underwent THR).

Leng expressed confidence: 'On the third day, I did not use the walking frame. I just use my walking stick. I've been given a new leg, practically!' (Leng MC3-83) (underwent TKR).

Some participants felt that the strange sounds and restricted movements of their affected legs no longer pervaded their lives; they could now walk and move more freely with their new legs. A qualitative study (Fujita et al., 2006) conducted in Japan on elderly participants who underwent THR found that they adapted to life with prosthesis gradually as the feeling of strangeness within their bodies waned. Another qualitative study (Demierre et al., 2011) conducted in Switzerland on adult participants with a mean age of 60 years found that they had to accept living with prosthesis, which necessitates psychological acceptance and functional integration. Therefore, it is important to understand that elderly participants need space and time to adapt to the sensation of their new legs or prosthesis.

The next section describes the subtheme of 'appreciative of support from informal carers'. It describes the elderly participants' appreciation of the support received from their family members and home helpers.

6.2.3.3 Appreciative of support from informal carers

All participants were appreciative of the support they received from informal carers such as spouses, children and home helpers in coping with their level of mobility and activities of daily living after surgery. The participants acknowledged the effort and special arrangements made by the family members and home helpers to accommodate and care for them during the

recovery period. In this study, home helpers were referred to the 'servants' and 'maids' who were employed to take care of households in Singapore. However, the participants aimed to be independent and overcome the odds in their journey of recovery in order to minimise 'troubling' the informal carers. Participants did not want to 'trouble' or 'worry' their informal carers, and they tried to hold back any complaints to avoid unnecessary disruptions to their family members—especially those who were working.

Ngian emphasised: 'No doubt a lot of people are very helpful, but…I don't want to trouble them' (Ngian MC5-66).

Hua shared her need for independence: 'But sometimes I don't like to trouble them [family members]. I very scared. Like today, my husband…want to come and fetch me. Don't care about me, I got mad. I'm very independent type' (Hua FC14-65).

Hin wanted to be seen as independent:

> If I want to walk down, definitely she [wife] will say that she want to go, you know. I don't want to have that. I want to [be] independent. Not to depend on [wife and son]. For my personal experience, even though is my family, I don't like to let them worry (Hin MC8-71).

Hin expressed his need for independence:

> My wife is very support[ive] my children are very supportive, but the thing is that they are all working except my wife…so I don't want to take too much of their time. I don't complain too much. Whatever they asked me I said 'it's okay, fine, fine'. You don't have to make them, you know, work then make them come back to see you—waste a lot of time you know (Hin MC8-71).

Some participants said that their sons and daughters had worked very hard to support them during their period of rehabilitation, and this had taken a toll on their time. They were mindful not to be demanding and dependent on their

spouses, as it would take a toll on them because their ageing spouses also had medical problems.

Huay expressed appreciation to her family:

> My wife has to look after herself more. The servant [maid] gives me support here and there. I try not to be rely too much on them. As long as I can walk, I can do something, I tried to…but still the family support is very important. They have been working very hard, sending me around, but a lot of the time wasted. My son is very supportive. During the one month, he drove me around, as I am not supposed to drive. My daughter tried to arrange for appointments (Huay MC2-78).

Leng expressed concern: 'I meant that I'm not demanding. I don't want her [wife] to…she is not young' (Leng MC3-83).

One participant who had been working away from his home and family felt a strong need to be independent throughout the perioperative period, although his family had been supportive of him. Being away from his home and family had instilled a strong sense of independence and confidence in overcoming challenges during his recovery.

Boo expressed his sense of independence:

> They [family] are supportive, but they know…I will do my best to help myself. I think it [going to hospital for admission alone] is better in that way because maybe I've been away. I've been in China for so many years. I'm a very independent man you know. Because they [family members] believe in me that I can do it by myself. Like I go to the rehabilitation centre, I go there alone (Boo MC9-66).

Family members and home helpers were a source of encouragement and support to the participants by helping them to gradually improve their mobility and independence during the recovery period in activities of daily living such as bathing and toileting. One participant was encouraged to walk home independently as the family withheld his walking stick. Home helpers were a

good source of help in menial chores, such as reminding the participants to take their medication. Spouses were the greatest source of help, as they helped in activities of daily living such as bathing and toileting. One participant appreciated that his family made necessary home arrangements to ensure that his bedroom was accessible at the ground floor during his period of recovery.

Ngian described: 'Because they [family members]…keep my walking stick, asked me to walk back' (Ngian MC5-66).

Huay reported: 'I took one Panadol—Ibuprofen—morning and night. My maid [home helper] reminds me as I was forgetful all the time' (Huay MC2-78).

Panu expressed: 'But the real physical…care comes from my wife' (Panu ML4-67).

Niu expressed appreciation:

> And in fact all because of my wife's help, she has been very good help. Otherwise myself…I don't think I can manage myself. Like bathing, going to toilet, all kind of things. [Both sons are] very supportive and very helpful. If anything, they will try to offer help (Niu MC10-73).

Leng described how he coped: 'My wife is very supportive. My son and daughter-in-law are also supportive. I moved from upstairs to downstairs. Exchange rooms with my son and wife. My wife won't allow me to do a lot of things' (Leng MC3-83).

Hin explained the support he received: 'Very well, support very good [from wife and son]' (Hin MC8-71).

Some participants were glad to receive regular home visits from their children. Children who lived abroad also kept in touch with participants via phone. One participant who had no children was appreciative that her siblings visited her often to help with the housework and run errands for her. The same participant

was appreciative that her sister took her out to nearby coffee shops to keep her spirits high and cheerful as she adapted to this challenging phase of recovery.

Oman described his family's support:

> My family…my children very good. 100 per cent support. But everyday after work, my family all will come tonight. Maybe they having dinner from here. Maybe they want to what, make me happy. Eldest daughter in Brunei. Every time SMS (Oman MM1-70).

Lian described the support she received from her sister: 'We [sister and participant] went there [coffee shop] to sit down, chit-chatted and then laugh and joke to get me, my spirit high, trying to cheer me up' (Lian FC11-72).

Lian further stressed: 'My sister, she came over a few times [to] attend to me and helped me with all the housework. He [my brother] went to buy the ice pack, quad stick for me, everything' (Lian FC11-72).

Familialism is an inherent mindset within Singapore's culture of multi-ethnic groups (Krishna, 2012). All participants were appreciative of the support they received from their informal carers, such as spouses, children, home helpers and siblings. They appreciated the sacrifices that their family members made in giving their 'precious' or 'limited' time during the participants' period of recovery. Thus, the essence of filial piety, or intergenerational reciprocity, within Singaporean societal and familial coping strategies was strongly inherent, despite the influence of the Western culture (Goranssen, 2009; Mehta & Thang, 2008).

This sub theme is not unique to Singapore and has been further reflected in New Zealand with a qualitative study (Perry, Hudson & Ardis, 2011) conducted on elderly participants that stressed the importance of family members' involvement during rehabilitation, especially the first week after discharge. Having family members to care for the participants at home became a prerequisite for being discharged from the hospital. The elderly participants perceived family support to be a vital component of their continuing

rehabilitation (Perry et al., 2011). Therefore, a strong network of support from family members and home helpers is important to help participants cope during the recovery period.

The elderly Singaporeans in this study embraced their traditional values of mental resilience and independence, as characterised by their desire to strive, 'save face' and be independent by not 'troubling' or causing 'inconvenience' to their family members, despite the ready assistance and support they offered after surgery. The testified beliefs on mental resilience and independence motivated these participants to take ownership of their recovery and look forward to regaining their lives again. The internalisation of self-management was a strong impetus to be active participants in their care continuity and recovery. No previous studies have focused on the values of resilience and independence of elderly Singaporeans in coping with recovery after surgery. Informal carers played an integral role in providing physical, mental and social support to the participants during the period of recovery. Furthermore, the informal carers played a crucial role in aiding the recovery process and made a positive impact on participants' postoperative experience.

The next section describes the subtheme of 'togetherness with family members and friends'. It describes how the elderly participants looked forward to life together with family members and friends upon recovery from their joint replacement surgery.

6.2.3.4 Togetherness with family members and friends

Participants hoped to regain their lives and enjoy togetherness with family members and friends—a life that had been put on hold because of the pain and disability they had suffered for four to eight years. They looked forward to spending more time with their spouses, family members and friends in activities such as swimming, jogging, cycling, golfing, attending concerts, attending computers classes, walking in parks, dancing and travelling.

Hua expressed her plans:

> My plan is okay, usual, as usual…I like swimming. Before operation pain, I cannot go jogging. I used to jog. And also I take the dancing class, social dance with my husband. That time pain. I still dance because I scare, I worry if I don't dance, my husband will not [have a] partner (Hua FC14-65).

Lim hoped to return to his activities: 'Cycling as well, play golf. My friends are all planning a trip to China in September, October. Hope to join them' (Lim MC6-72).

Mien wanted to move on: 'I still go and learn my computer. Actually, is one week later. Because one week later I have two days for computer class. But this Genting Highlands already…just before this few days only. I still go to Batam also' (Mien FC13-66).

Kate was also looking forward: 'I would very much like to go to a lot of concerts, that I was hoping on recently. I like music' (Kate FS7-76).

Sui wanted to join her friends again: 'Can go out with my friends. My friends are waiting for me to go out with them' (Sui FC12-65).

Lim hoped to walk: 'Hope to enjoy life again and walk around the park here' (Lim MC6-72).

Panu wanted to walk freely: 'I should be able to walk long distance. You know my wife and I, we take a walk in the morning 40–45 minutes. I haven't done that for years, at least a year' (Panu ML4-67).

Lim hoped to travel: 'Travelling again [to United States]. Visit my son probably…next year' (Lim MC6-72).

The strong desire for togetherness and to enjoy life with family members and friends, just like the days before their pain and disability, was a strong motivation for the elderly participants to regain their lives during this period of recovery. Findings from two qualitative studies conducted on elderly

participants in Sweden (Gustafsson et al., 2010a) and the United States (Jacobson et al., 2008) resonated with this study. Both studies found that participants made future plans with family and friends after their joint replacement surgery as they moved from happiness of recovery to resuming their everyday lives (Gustafsson et al., 2010a; Jacobson et al., 2008). It is important to understand that the participants, who were deprived of their lives for several years, were strongly motivated to work towards a positive recovery in order to enjoy their remaining time with family and friends.

In this section, the subthemes of 'Adaptation to life with new leg' and 'Togetherness with family members and friends', participants sought to engage more fully in social relationships and social reciprocity with their families and communities. Such social interactions were seen to provide a sense of meaning to life again from which the debilitating pain and poor physical functioning from severe osteoarthritis had deprived them. Social cohesion and integration into the society has been shown in a study to provide a positive effect on the health and an improvement on the mental well-being of individuals (Stansfield, 2006).

The next section describes the subtheme of 'encouraging others to undergo surgery'. It depicts the elderly participants who underwent successful joint replacement surgery and hoped to encourage others to undergo surgery rather than suffering with their pain and disability for years.

6.2.3.5 Encouraging others to undergo surgery

Some participants who had adapted and recovered well within two months of their joint replacement surgery were a source of encouragement to potential patients who were suffering from debilitating pain and disability. They articulated that they wanted to contribute as volunteers in a joint replacement support group to be a source of encouragement to potential patients who might be fearful of undergoing similar surgery.

Panu volunteered:

> That's why I said if you have anyone or is feeling a bit worried about it, send them to me or ask them to call me, I will talk to them. I like to volunteer you know seriously to meet people (Panu ML4-67).

Panu further expressed his interest: 'But support group is a big thing, you know, to meet a lot of people. I don't mind go and meet some fellows and tell them what I have gone through, encourage them not to fear this' (Panu ML4-67).

Leng described: 'I encouraged my wife's lady friend—a very good friend—to go for the knee operation. She is big in size and has been suffering in pain for six to eight months' (Leng MC3-83).

Lim shared: 'We [his spouse and him] keep encouraging her [relative] to do it now' (Lim MC6-72).

Ngian reported his experience: 'She asked me, "how much is it, now any pain?" I said "no pain…worth it"' (Ngian MC5-66).

Thus, some participants with positive experiences in both surgery and recovery were ready to encourage others to undergo similar surgeries. Their positive experiences increased their level of confidence and readiness to share their experiences and reassure potential candidates for joint replacement surgery. Participants with positive outlooks would present an ideal support group in a healthcare institution. Such a support group would help potential candidates to be better informed on how to cope with the debilitating chronic condition, to make decisions regarding joint replacement surgery, and to cope more positively during the recovery period. Until now, no studies have focused on participants with positive experiences who want to be advocates in encouraging potential candidates to undergo joint replacement surgery.

The next section presents the overarching theme that depicted the perioperative experiences of elderly Singaporeans undergoing joint replacement surgery.

6.3 Overarching Theme: 'Journey to Regain Life'

This section identifies the overarching theme of 'journey to regain life', which embodies the participants' perceptions of their perioperative experiences of undergoing joint replacement surgery. This overarching theme is aptly described over the three critical phases—'beginning of pain' (preoperative), 'finding a solution' (intraoperative) and 'recovering' (postoperative)—with its associated themes and subthemes, which characterises the participants' experiential perioperative journeys. Eight themes and 21 subthemes emerged from the findings of the three phases of the perioperative journey to depict the insights and storied lives of the elderly Singaporeans' perioperative experiences undergoing joint replacement surgery (see Table 5.2). In the researcher's reflexivity of the overarching theme 'Journey to regain life', each of the 14 participants have contributed rich and insightful perceptions of their challenges in coping with their pain and disabilities from severe osteoarthritis over six months to ten years before deciding to undergo joint replacement surgery to regain their lives that they had been so deprived when facing severe osteoarthritis. As the researcher's mother also suffered from severe knee osteoarthritis, she could relate to the life's restrictions with travelling and most importantly impact the activities of daily living where standing for short periods during cooking led to painful swollen knees. The researcher's mother was also unable to walk for long distances during family's dinner outings as it proved a challenge even to the simple mobility. Therefore, she resorted to confining herself at home and avoid social activities as it worsened her knee condition. The study participants sought hope and cure from complementary therapy over a time period but were disappointed that the pain relief was

merely temporal and they knew that surgery was inevitable. The researcher could relate to some participants who sought peace of mind and drew strength from their faith and religion in coping with the stress of pain and disability. The participants placed hope that their spiritual journey would ease and obviate the stress of pain and disability. The immersion of faith and religion gave them the impetus of calmness and confidence of the inevitable surgical journey The 'Journey to regain life' was fraught with fear and uncertainties even as the participants deliberated on their decisions to undergo joint replacement surgery. Once the participants made firm decisions to undergo surgery, many looked forward to a successful surgery so that they could resume their social activities, travels, work, spending more time with their family and friends once more and losing the pain. Since the researcher had worked as a nurse in the operating theatre and also as academic who had supervised students' clinical supervision in the operating theatre, the researcher could relate to some participants' awareness of the sounds and scenes during the surgery. Such awareness brought forth the conscious effort to check on patients' comfort level and the need to be sedated rather than being fully aware of the surroundings which may prove to be stressful during surgery. During the postoperative period, some participants encountered surgical complications such as wound infection, bleeding and bruises of their affected legs. The researcher was able to empathise the sense of apprehension and resistance of some participants in taking on the exercise regime to prevent worsening of the infected wound. These participants felt that they knew their limitations of the recovering body better than health professionals who prescribed the standard exercise regime to all TKR and THR patients. The researcher's mother did not adopt the 'yin-yang' of foods during the recovery period as there was no special 'yin-yang' diet prepared from home and she was happy with the hospital food. The practice of 'yin-yang' seemed more common among the dialect group of Cantonese Chinese. The sense of independence and mental resilience of some participants helped them to overcome the many challenges faced during their perioperative journeys, in

particular, the two study participants (participant #8: Hin MC8-71 Left TKR and and participant #7 Kate FS7-76 Right THR) who faced the challenge of infected surgical wound. In the researcher's understanding and knowledge, an infected surgical wound, especially so, joint replacement surgery would bring dire consequences of rejected implants if the wound did not heal. The two participants took active measures to have their infected wound treated in a timely fashion as they knew the negative impact of non-healing surgical wound. The researcher could internalize the criticisms of these two participants on healthcare professionals for not actively listening to their concerns of deteriorating wound and seemed to be taking for granted that wound healing takes time. As a nurse, the researcher felt that sometimes, nurses may not internalize the actual concerns of their patients on their surgical wounds but rather the process of wound healing takes it recourse. The emphasis and real concerns of these two patients led to an acute awareness of the need to listen and be sensitive to our patients rather than merely relying on medical or nursing knowledge as healthcare professionals. The informal carers such as spouses, family members, home helpers and friends provided crucial support in helping some participants coped during the perioperative journey. The researcher's mother postoperative period was adequately supported by the home helper and her children at home during the rehabilitation period. The researcher's mother travelled to China after recuperating for eight months and participated in social activities and this brought back the meaning to life again. However, the long standing of suffering knee osteoarthritis for 4 years took a toll on her compensating lower spine as she began to manifest persistent backache. Therefore, the rich accounts and rapport built by the researcher with the study participants has allowed the researcher to gain further insight on the storied lives and perceptions of the participants undergoing joint replacement surgery. During the interviews, the researcher made conscious effort to place herself as a researcher to avoid any biasness and any effort of the participants in seeking nurses' opinion on their condition. There were occasional interjections of nursing opinion and questions during the

interviews as the participants knew the researchers' background during the brief introduction. There were deliberate attempts to provide nursing consultation after the interviews to allow focus of the interviews.

The next section discusses the key findings from Chapters 5 and 6 in light of answering the key research questions.

6.4 Application of Key Findings to the Research Questions

This section discusses the study's findings in relation to addressing the research questions across the three critical phases of 'beginning of pain' (preoperative), 'finding a Solution' (intraoperative) and 'recovering' (postoperative).

Question 1: How do cultural values inform the perceptions of elderly Singaporeans undergoing joint replacement surgery?

The study findings showed that cultural values informed the perception of the participants over the two critical phases of the perioperative journey: the 'beginning of pain' and 'recovering'. The subthemes of the 'beginning of pain' phase related to cultural values are: 'Placing hope on complementary therapy (under the theme 'A deteriorating, disabled and limiting body wanting a functioning abled body') and 'Drawing peace of mind and inner strength from faith and religion (under the theme 'Living in fear, anxiety and uncertainty in anticipation of surgery'). The subtheme of the 'recovering' phase related to cultural values which informed the perception of participants is 'Yin-Yang of foods for the recovering body' (under the subtheme 'Cultural beliefs / practice on the recovering body').

During the 'beginning of pain' (preoperative) phase, cultural values such as complementary therapy and drawing a peace of mind through faith and religiosity were testified to influence the perioperative journeys of this specific

cohort of elderly Singaporeans undergoing joint replacement surgery. The cultural values of these Chinese Singaporeans in part guided them to seek complementary therapy to alleviate their pain and disability preoperatively. During the preoperative period, some Chinese Singaporean participants sought out, and placed high hopes on, complementary therapies (e.g., TCM, herbal remedies, *Tui Na*, medicated sprays and plasters) to relieve and cure the pain and disability of their severe osteoarthritis over several years. Music and chanting served as a distraction to pain relief. However, such complementary therapies only provided temporal relief. Some participants drew peace of mind and inner strength from their faith and religion such as Christianity and Buddhism that enabled them to cope with their pain and disability.

During the 'recovering' (postoperative) phase, cultural values such as embracing the 'Yin-Yang' of food beliefs were testified to influence the perioperative journeys of this specific cohort of elderly Singaporeans undergoing joint replacement surgery. The ethnic Chinese participants' specifically alluded to their cultural beliefs regarding 'Yin-Yang' in relation to food consumption to promote healing. Such cultural beliefs influenced their strict adherence to consuming healing foods (*Sang Yu);* and abstaining from certain foods that impaired the healing of their wounds (*Sang Yu*, prawns, eggs and crabs within two weeks of surgery). During hospitalisation, these participants would then request and abstain from specific foods and timing in order to aid wound healing. The poor or slow healing of their surgical wounds further reminded them on the need to abstain from certain cultural food preferences. Therefore, participants' cultural values over the two critical phases informed their perioperative experience.

Question 2: How do personal beliefs inform the perceptions of elderly Singaporeans undergoing joint replacement surgery?

Personal beliefs informed the perception of the participants over the two critical phases of the perioperative journey: 'beginning of pain' and 'recovering'. The subthemes of the 'beginning of pain' phase related to personal beliefs which informed the perception of participants were

‘Awareness of self-image’ and ‘Fear over side-effects of painkillers (under the theme ‘A deteriorating, disabled and limiting body wanting a functioning abled body’); ‘Positive influence’ and ‘Negative influence’ (under the theme ‘Gathering information to decide on surgery); ‘Drawing from past experiences’ (under the theme ‘Living in fear, anxiety and uncertainty in anticipation of surgery’);. The subthemes of the ‘recovering’ phase related to personal beliefs which informed the perception of participants were ‘Experiencing problems related to surgery’ and ‘Discovering possibilities and limitations to own body’ (under the theme ‘Adapting to an unfamiliar body’); ‘Appreciative of support from informal carers’ and ‘Encouraging others to undergo surgery’ (under the theme ‘Adjusting to a new body and life again’).

During the ‘beginning of pain’ (preoperative) phase, personal beliefs relating to self-image or appearance led some participants to camouflage their disabled bodies and isolate themselves to avoid embarrassment of their disabled bodies. Furthermore, some participants held a certain belief and fear about the side-effects of pain medications as they would take the medication only when the pain was unbearable. The fear of the side-effects of painkillers may have led to non-compliance of medication. Findings in this study also showed that personal beliefs were influenced by the active engagement in health-seeking behaviours such as gathering information from the internet, peers, family members and healthcare providers to make informed decisions regarding surgery. These information sources had both positive and negative influences, which further informed participants’ decisions about surgery. Participants with the beliefs on the importance of positive thinking and being independent stayed focused on active participation and alluded to coping better during recovery and rehabilitation. Participants who received negative influences were hesitant on the decision for surgery. Additionally, personal beliefs were also drawn from past surgical experiences whereby participants who underwent joint replacement in the past tend to believe that the surgery would help them overcome the health problem.

During the ‘recovering’ (postoperative) phase, personal beliefs such as positive or negative outlook influenced the adaptation to an unfamiliar body

after surgery. Participants who testified to having a negative outlook in facing problems such as infected wounds and urinary tract infections related to surgery experienced fear, apprehension and frustration tended to hold beliefs of scepticism of the medical and nursing management. Participants who testified to having a positive outlook in facing the challenges in rehabilitative exercises and mobility related to surgery were better able to cope as they continued to discover the possibilities and limitations of their own body. Therefore, these participants' positive and negative outlooks presented another dimension in informing the perceptions of their perioperative experiences. Furthermore, personal beliefs on independence and mental resilience emerged during the support of informal carers such as family members and home helpers. The participants testified to wanting to be as independent as they could rather than relying and burdening their family members and home helpers in activities of daily living. Some of the participants were keen in volunteering as advocators to encourage and support people who may need joint replacement surgery as their testimonies would assist others to cope with the decision and recovery from surgery. Therefore, participants' personal beliefs over the two critical phases informed their perioperative experience.

Question 3: What is the nature of the mental adjustments of elderly Singaporeans undergoing joint replacement surgery?

Findings in the study showed participants underwent mental transitions or adjustments in coping and informing their perioperative journeys. Coping is defined as 'constantly changing cognitive and behavioural efforts to manage specific external or internal demands that are appraised as exceeding the resources of the person' (Lazarus and Folkman, 1984, p.141). The two different coping strategies were further differentiated by Lazarus and Folkman (1984) as problem-focused coping and emotion-focused coping. Emotion-focused coping describes the procrastination of the nature of stress from one's mind to reduce stress (Lazarus and Folkman, 1984). The constant mental adjustments using emotion-focused coping informed the perception of the participants over the two critical phases of the perioperative journey: 'beginning of pain', 'finding solution' and 'recovering'.

The subthemes of the ‘beginning of pain’ phase related to mental adjustments which informed the perception of participants were ‘A hope to regain life’ (under theme ‘A deteriorating, disabled and limiting body wanting a functioning abled body’), ‘Fear and anxiety’ and ‘Drawing from past experiences’ (under theme ‘Living in fear, anxiety and uncertainty in anticipation of surgery’). The subthemes of the ‘finding solution’ phase related to mental readjustments which informed the perception of participants were ‘Awareness of operation-related sounds and scenes’ and ‘Feelings of physical detachment from the body’ (under the theme ‘Detachment from the body’). The subthemes of the ‘recovering’ phase related to mental readjustments which informed the perception of participants were ‘Getting the body to be in charge again’ and ‘Appreciative of support from informal carers’ (under the theme ‘Adjusting to a new body and life again’).

During the ‘beginning of pain’ (preoperative) phase, some participants placed hope in regaining their lives by the re-immersion into their social activities such as sport, travelling, dancing, working, studying and other activities after surgery. Such hopes gave them strength to bear the pain of surgery in exchange of a better life after surgery. Participants experienced fear and anxiety of the impending surgery as they were fearful of the risks and complication of surgery and not waking up from their sleep to face surgery; anxious if they could cope with the postoperative pain with the sleepless nights and nightmares. Some participants drew peace of mind and inner strength from their faith and religion such as Christianity and Buddhism which gave them a sense of readiness in anticipation for surgery. Participants used emotion-focused coping to cope with the mental transition of impending surgery.

During the ‘finding solution’ (intraoperative) phase, some participants testified to feeling fearful, anxious and a sense of physical detachment from their bodies, as they could see and hear the sounds of hammering and scenes of their legs being manipulated in mid-air on the television screen during surgery as they lay half-numb with no feelings in their legs. Some participants

experienced a mental transition of fear and apprehension as they gained consciousness from the sedation during the regional anaesthesia. The mental adjustment during this stage included multiple attempts to close their eyes to obviate the mental visualisations of the vivid scenes in calming their minds. Embracing a sense of calmness was part of emotion-focused coping during this phase.

During the 'recovering' (postoperative) phase, some participants expressed their strong desires in 'getting back their bodies' prior to surgery. With the mental resilience on regaining independence and wanting not to trouble their spouses, family members, helpers and friends, they continued to adjust their new bodies and legs during this challenging period of one to two months to return to their usual social activities. Therefore, participants' mental adjustments over the three critical phases informed their perioperative experience.

Question 4: What is the nature of the social adjustments of elderly Singaporeans undergoing joint replacement surgery?

During the perioperative journey, participants testified that their social lives were affected by the deteriorating pain and disability related to severe osteoarthritis. The findings in this study indicated how participants made social adjustment in the two critical phases of the perioperative journey: 'beginning of pain', and 'recovering'. The subthemes of the 'beginning of pain' phase related to social adjustments which informed the perception of participants were 'Enduring pain and limiting body' and 'Awareness of self-image' (under the theme 'A deteriorating, disabled and limiting body wanting a functioning abled body'). The subthemes of the 'recovering' phase related to social readjustments are 'Experiencing problems related to surgery' were 'Discovering possibilities and limitations to own body' (under the theme 'Adapting to an unfamiliar body'), 'Togetherness with family members and friends' (under the theme 'Adjusting to a new body and life again)'.

During the ‘beginning of pain’ (preoperative) phase, some participants had to stop work, working from home, sought early retirement or made work adjustments due to their debilitating pain and disability. Participants refrained from travelling as they found the pain and disability cumbersome, and posed a burden to the family members and others. They alluded to isolating themselves from social and family activities because they felt a sense of awkwardness and embarrassment of their self-image when walking with a limping gait in public areas.

During the ‘recovering’ (postoperative) phase, some participants refrained from certain social activities as they experienced problem related to surgery such as wound infections. Many participants commenced their social activities at a slow pace as they began to internalise and weigh the possibilities and limitations of their new bodies and legs. The ongoing social relationship and togetherness with their family members and friends gave them a sense of meaning in their lives. They were appreciative of the support received from the family members and home helpers during the recovery period. There was a constant need to make necessary social adjustments due to changing priorities at different phases of the perioperative journey. Therefore, the participants’ specific social transitions during the two critical phases informed the perceptions of their perioperative experiences.

Question 5: How do elderly Singaporeans cope when undergoing joint replacement surgery?

In the findings of this study, problem-focused coping was used by participants in informing their perioperative journey Problem-focused coping relates to taking a deliberate course of action to reduce the level of stress (Lazarus and Folkman, 1984).

The findings in this study indicated how participants used problem-focused coping over the two critical phases of the perioperative journey: ‘beginning of pain’, and ‘recovering’. The subthemes of the ‘beginning of pain’ phase related to problem-focused coping which informed the perception of

participants were ‘Placing hope on complementary therapy’ and ‘Fear over side-effects of painkillers’ (under the theme ‘A deteriorating, disabled and limiting body wanting a functioning abled body), ‘Positive influence’ and negative influences (under the theme ‘Gathering information to decide on surgery’), ‘Drawing from past experiences’ and ‘Entrusting the outcome of surgery to formal carers’ (under the theme ‘Living in fear, anxiety and uncertainty in anticipation of surgery’), and the theme ‘Receiving information in preparation for surgery. The subthemes of the ‘recovering’ phase related to coping which informed the perception of participants were ‘Experiencing problems related to surgery’, ‘Discovering possibilities and limitations to own body’ (under the theme ‘Adapting to an unfamiliar body’), ‘Yin-yang of foods for the recovering body’ (under the theme ‘Cultural beliefs/practice on the recovering body’) and ‘Getting the body to be in charge again’, ‘Adaptation to life with new leg’ (under the theme ‘Adjusting to a new body and life again’).

During the ‘beginning of pain’ (preoperative) phase, some participants used problem-focused coping by seeking complementary therapy such as TCM, herbal remedies, music and chanting for cure and relief of the debilitating pain and disability which only provided temporal relief. In regards to taking painkillers, participants became non-compliant or taking the painkillers only pain was intolerable due to the fear of side-effects of painkillers. The participants gathered information from various sources such as internet, friends, family members and healthcare providers to help them cope with the chronic pain and disability and decision-making for surgery. Problem-coping during this stage included seeking and receiving advice and information by the health providers and drawing on experiences from past surgery for reassurance and confidence in preparation for the surgery. Participants testified to being better prepared on knowing the type of anaesthesia, surgical expectations and recovery process. They testified feeling more confident and reassured of the outcome of surgery when they placed considerable trust on the formal carers such as doctors.

During the ‘recovering’ (postoperative) phase, some participants used problem-focused coping strategies to adapt and pace up slowly to the level of

activities of daily living and social activities when they were faced with surgical complications such as wound infection and urinary infection. Problem-focused coping was utilised as participants with wound infection visited the polyclinics, private clinics or Accident and Emergency Department of the hospitals to seek medical attention. Some participants were sceptic with the prescribed exercises by the physiotherapy as it seemed to worsen the wound healing, delayed use of antibiotics as part of medical management and removal of the urinary catheter in the evening instead of morning by the nurses which aggravated the urinary tract infection. They coped by moderating their prescribed exercises to reduce further aggravation to the infected surgical wound. Participants also moderated their exercises, mobility and activities as they internalise and weigh the capabilities and limitations of their own recovering bodies during the rehabilitation period. In seeking recovery for their bodies and healing of wounds, some Chinese participants consumed 'Yin-Yang' foods such as 'Sang Yu' two weeks after surgery to promote wound healing and abstained from 'poison foods' such as prawns, eggs and crabs that delayed wound healing. Some participants continued with the regime of exercises as they looked forward to getting the bodies to be in charge again by regaining back their mobility, independence and quality of life and losing the pain. They coped with the strange feeling of their new legs and prosthesis as they continued their journey of rehabilitation.

The next section discusses the application of findings to the adapted model of the CCM (Wagner, 1998) and SCT (Bandura, 1997).

6.5 Critical Application of Findings to the Adapted Model of the Chronic Care Model and Social Cognitive Theory

This section presents a critical discussion of the study's findings in light of the adapted model drawn from the CCM (Wagner, 1998) and SCT (Bandura, 1997) (see Figure 3.3).

The three key factors - environment, self-management and personal factors that emerged from the findings were in accordance with the adapted model**.**

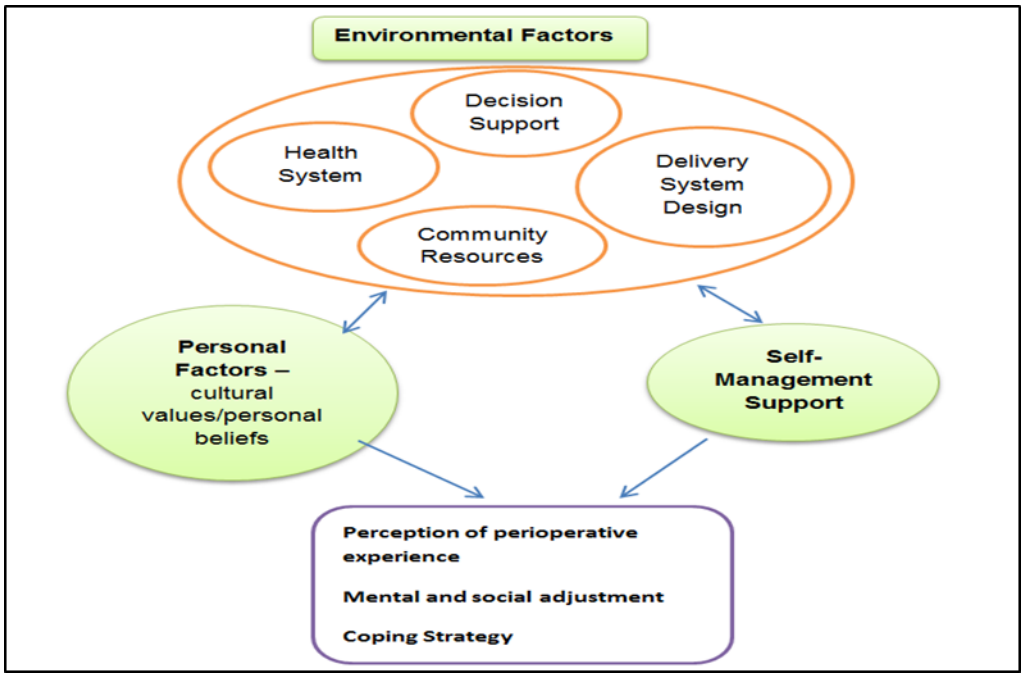

Figure 3.3: Adapted Model

Adapted from Wagner (1998) and Bandura (1997)

Environment factors

The adapted model (see Figure 3.3) featured the environmental sub-factors, an extrinsic factor which comprised of health system, delivery system design, decision support and community resources. The findings of this study supported all the sub-factors of delivery system design, decision support and community resources except for health system. Health system which relates to the organisational culture of creating a safe and conducive environment in providing timely consultation and treatment was not featured in the findings. Delivery system design relates to the coordinated delivery of effective clinical care of health professionals, especially the doctors, nurses and physiotherapists in supporting self-management of patients in a culturally-sensitive approach. Decision support supports the valuable information and guidance received from the formal carers (doctors, nurses and physiotherapists) in preparing the participants to cope with surgery and

recovery. Community resources emerged as the support from informal carers such as spouses, family members, home helpers and friends; and the resuming of social activities.

Self-management support

Based on the adapted model, self-management support, an intrinsic factor relates to the active participation of participants in coping with the trajectory of the chronic illness of osteoarthritis. The findings of this study showed that self-management support was in accordance with the adapted model. Self-management depicted how the participants' faced constant mental, social adjustments and adopted various coping strategies in informing the perception of their perioperative journey.

Mental adjustment

The findings of this study depicted the interplay of emotion-focused coping in the mental transition or adjustment which included drawing inner strength, peace of mind from their faith and religiosity, acceptance of surgery in exchange of better life, fear and anxiety awaiting for surgery, apprehension when gaining consciousness from sedation and sense of detachment during surgery and mental resilience to regain independence after surgery.

Social adjustment

The findings of this study depicted the dynamic social transition or adjustments from the onset of osteoarthritis to rehabilitation period which included seeking early retirement or modifications at work, isolating from social activities before surgery, moderating their exercise regimes with the surgical complications and resuming social activities and social relationship with family members and friends after surgery.

Coping

The study findings found that participants use problem-focused coping which included taking proactive approach in seeking complementary therapy in seeking relief and cure, abstaining from painkillers due to fear of side-effects, gathering various information from family members, friends and healthcare providers in the decision-making for surgery, receiving information from healthcare providers, drawing on past surgical experiences and placing trust on formal carers for confidence and reassurance in preparation for surgery. The findings also depicted the moderation of exercise regime in coping with their recovering bodies and new prosthesis in regaining their bodies again.

Personal factors

Based on the adapted model, personal factors, an intrinsic factor relates to the personal beliefs and cultural values of the participants. The findings from this study showed that personal factors comprising of personal beliefs and cultural values were in accordance with the adapted model.

Personal beliefs

The findings from this study revealed that participants' personal beliefs included positive and negative outlook towards surgery, perception of their self-image following pain and disability, beliefs on medication side-effects, information-seeking behaviour, previous experiences of the joint replacement surgery and a sense of independence and resilience during the journey.

Cultural values

The study findings reflected participants' cultural values in relation to the use of complementary therapies (e.g., TCM, herbal remedies, acupuncture, *Tui Na*, medicated sprays and plasters, music and chanting), faith and religiosity to deal with problems, and Yin and Yang practice.

In summary, the adapted model suggested that all the three key factors – personal factors, environment factors, self-management and associated sub-

factors that emerged from the findings were in accordance with the adapted model**.**

The summaries of two participants, Leng MC3-83, Right Total Knee Replacement (refer to Appendix 5.3) and Kate FS7-76 Right Total Hip Replacement (refer to Appendix 5.4) are presented to provide an overview of the perception of their perioperative experiences undergoing joint replacement surgery. Each summary is presented using the key factors of the adapted model – environment, self-management support and personal factors.

The next section presents a discussion of the limitations of this study.

6.6 Limitations

This section discusses the limitations of the study. One limitation was that the interview guides used in this study have limited content validity. The development of the interview guides were informed by the integrative literature review and one methodological expert (researcher's former research supervisor). Content validity refers to the adequacy of guide/guides which 'contains all the elements that reflect the variable being studied' (Portney & Watkins, 2000, p.83). Future research should conduct more rigorous content validity by subjecting the interview guides to three or more methodological experts and clinical staff in the construction and review of the interview guides.

A limitation was that the participants comprised of 11 Chinese, one Malay, one Sri Lankan and one Caucasian. The cultural differences in health beliefs and perioperative experiences of joint replacement surgery related to osteoarthritis may not be clearly differentiated in-depth. This would imply that the data was homogenous and did not represent the diversity of Singapore's elderly community. A convenience sampling was used to select participants who could elicit rich descriptive data of their perioperative journeys (Holloway & Wheeler, 2010). However, the ethnic composition in this study

was representative of Singapore's contemporary resident population (see Section 1.2.4.1). A purposive sampling approach would have addressed this limitation.

In respect to gender, there were ten males and four females who were recruited by way of convenience sampling. A purposive sampling would have addressed this limitation.

Another limitation was that the sampling only included elderly participants who could speak English, although it was explained that some participants expressed themselves in dialects and their mother tongues during the interviews. This study may not have addressed the multi-ethnic elderly Singaporeans who spoke mainly Chinese dialects, Mandarin, Malay and Tamil. In Singapore, the majority of elderly Chinese people (64 per cent) often speak in Chinese dialects. Similarly, in Singapore, the elderly Malays (97 per cent) mainly speak Malay and elderly Indians (48 per cent) mainly speak Tamil at home (Wong & Teo, 2011). Future research could consider the inclusion of participants who speak Chinese dialects, Mandarin, Malay and Tamil.

One limitation was that only one participant was used for the pilot interviews (1 and 2) to evaluate any ambiguity of the two interview guides, interviewing approach and time taken. Therefore, there may not be sufficient information to guide the evaluation. Future research can explore engaging three or four participants as pilot interviews to guide the evaluation of interview guides.

Another limitation was the use of probing words for some participants who had difficulty articulating in English as they shared their experiences in both English and Chinese dialects. Others communicated using Chinese dialects and their mother tongue, such as Malay and Mandarin, as they felt more comfortable expressing themselves using mixed languages. Therefore, the researcher ensured that all non-English-language expressions and words were translated to ensure clarity in the data transcription and data analysis.

One limitation was the overlapping of preoperative information in interviews 1 and 2. The focus of the first interview was perceptions from the preoperative, intraoperative and immediate postoperative experiences, and the focus of the second interview was the postoperative experiences of joint replacement surgery. However, most participants repeated certain aspects of their preoperative experience during the second interview, despite the explanation and emphasis by the researcher to focus on their postoperative experiences. The researcher decided not to stop the participants from sharing parts of their preoperative experiences during the second interview, as the participants found this sharing to be an essential part to constructing their thoughts of their perioperative journeys. Instead, the overlapping information was used to validate the preoperative information of the first interviews. The validation found that the preoperative information was consistent across both interviews. Future researchers could consider conducting an interview to focus mainly on the participants' perioperative journeys during the postoperative period in order to avoid the overlapping of information.

Another limitation was the lack of triangulation of data sets to confirm the insights and perception of the participants of this study. In this study, some studies (Fujita et al., 2006; Gustaffson et al., 2007; Mauleon et al., 2007) that explored older persons' experiences of their joint replacement surgery recruited the participants only. The focus of this study was to explore the elderly participants' perception of their perioperative experience. Therefore, future research could consider the inclusion of another population group, for example, the caregivers of the participants to provide triangulation of the participants' data and add strength to this study.

A limitation was that the adapted model drew only on certain aspects from the CCM (Wagner, 1998) and SCT (Bandura, 1997) and may have limited the accounts of the participants' perception of their perioperative experiences. Therefore, future research may need to consider other factors that were not adopted in the adapted model such as health system, clinical information systems and preparedness of proactive teams from the CCM (Wagner, 1998).

Similarly, the factors of behavioural and environmental events from SCT (Bandura, 1997) may also be considered.

Another limitation was that spirituality coping was not explored in-depth in coping with fear and apprehension during the 'Finding the solution' or intraoperative phase. In this study, the research questions did not include spiritual coping though findings on spiritual coping were elicited during the preoperative period. Future studies could include the role of spirituality coping in the interview guides or prompts to examine the influence of spirituality coping during the stressful events of surgery.

6.7 Summary

This chapter presented the findings and discussion of the emerging three themes and eight subthemes that described the perceptions of elderly Singaporean participants during the 'recovering' (postoperative) phase in constructing the overarching theme of 'journey to regain life' after joint replacement surgery. A discussion of the findings was presented in relation to the adapted model of the CCM (Wagner, 1998) and SCT (Bandura, 1997) and the final model of 'journey to regain life'. This chapter also discussed the key findings of the research questions. Finally, the limitations of the study were discussed.

Chapter 7: Conclusion

7.1 Introduction

Singapore faces a rapidly ageing population with resultant chronic illnesses such as severe osteoarthritis. With severe osteoarthritis, the elderly population experiences progressive degeneration of the knee and hip joints, as well as debilitating pain and disability, which affect their QOL. In Singapore, there is an increasing trend among elderly patients to undergo joint replacement surgery as the treatment of choice. This study aimed to examine how elderly Singaporeans adjusted mentally and socially in coping with their perioperative journeys. Their perioperative journeys were influenced by their diverse cultural values and personal beliefs. These perceptions determined their mental and social adjustments and coping strategies during their perioperative journeys.

The next section presents an overview of the study, which addresses the methodology and proposed models.

7.2 Overview of the Study

The theoretical framework of the CCM (Wagner, 1998) and SCT (Bandura, 1997) was utilised to guide this study. The adapted model (see Figure 3.3) utilised elements of the CCM such as health system, delivery system design, decision support, self-management support and community resources, except for clinical information system. The clinical information system element was excluded from the construction of the adapted model because the perceptions of the perioperative experiences of elderly Singaporeans did not revolve around clinical information systems. Similarly, the two factors of the SCT, namely the personal factors and the environmental factors, were included in the adapted model. The factor of behaviour was excluded because it was considered an outcome of the interacting determinants, and not an independent

factor. The environmental factors subsumed the elements of health system, decision support, delivery system design and community resources.

The study findings were in accordance with the factors of the adapted model (see Figure 3.3) for the three critical phases: 'beginning of pain' (preoperative), 'finding solution' (intraoperative) and 'recovering' (postoperative) in informing the participants' perioperative experience. The three major factors - personal factors, environment factors and self-management that emerged from the findings were also in accordance with the adapted model**.**

A qualitative descriptive methodology enabled the elicitation of rich, textured data and insightful reflections from the multi-ethnic elderly participants being informed by two repeated interviews. Personal beliefs, cultural values, mental and social adjustments, and coping strategies influenced the perceptions of the elderly patients' perioperative experiences.

The central tenets that informed the elderly patients' perceptions of their perioperative experiences were personal factors, environmental factors and self-management.

In Singapore, nurses have traditionally focused on managing patients based on their clinical issues and symptoms, and lacked focus on socio-cultural considerations such as the personal beliefs and cultural values. Personal beliefs and cultural values impact the participants' mental and social states, and coping behaviours during their perioperative experience. There is a need for nursing in Singapore to shift from the current focus of symptomatic management to a more patient- and culture-centric.

The next section summarises the study's findings into three critical phases of 'beginning of pain', 'finding solution' and 'recovering' of the elderly participants' perioperative journeys undergoing joint replacement surgery.

7.3 Summary of Findings

In the study's findings, the overarching theme of 'journey to regain life' aptly depicted the three critical phases of the perioperative journey of 'beginning of pain', 'finding a solution' and 'recovering', where a total of eight themes and 21 subthemes emerged to capture the perceptions of elderly Singaporeans' perioperative experiences during joint replacement surgery (refer to Table 5.2).

7.3.1 Beginning of pain

In the 'beginning of pain' phase, four themes and 11 subthemes emerged during the preoperative phase. The participants utilised various coping strategies to cope with the trajectory of their chronic illness of severe knee or hip osteoarthritis. They faced constant mental and social transition and readjustments in adapting to, and coping with, their lives, and their debilitating pain and disability restricted their social activities and travelling. This led to increasing reliance on stronger painkillers and walking aids. Deliberate plans for work retirement or even reducing work duration were instituted because of increasing difficulty coping with the current work. Participants placed high hopes on complementary therapies (e.g., acupuncture, herbal remedies, *Tui Na*, medicated sprays and plasters) for relief or a cure. However, their hopes proved futile, and this led to disappointment because the complementary therapies only accorded temporal relief. In relation to awareness of self-image in public, the female participants coped with their disability by camouflaging their clothing because they were concerned and embarrassed about how others perceived them.

During the waiting time, participants lived with fear, anxiety and uncertainty in anticipation of their surgery. They feared that they might not live through the surgery. Some participants coped by drawing inner peace from their faith and religion to ease their fear and anxiety. For others, their calmness surprised them as their surgery drew near. Past surgical experience, specifically joint

replacement surgery, provided better mental preparedness for the impending surgery and social adjustment during the rehabilitation process. In addition, entrusting their fate and the outcome of their surgery to formal carers gave participants much needed reassurance and confidence during their wait for surgery. The reassurance and information received from healthcare staff during the preoperative assessment were perceived to be useful in preparing the participants for the surgery.

7.3.2 Finding solution

In 'finding solution', one theme and two subthemes emerged to capture the perceptions of elderly patients undergoing joint replacement surgery during the intraoperative phase. The findings in this phase described participants' journeys in the operating theatre in their pursuit of 'finding solution' for their pain and disability related to severe osteoarthritis. Participants who underwent regional anaesthesia were aware of their surroundings as they gained consciousness and felt a sense of detachment and alienation from their bodies as they witnessed their legs being manipulated in mid-air. The unanticipated sounds and sights in the operating theatre left the participants feeling upset, distressed and fearful during that period. In contrast, participants with prior experience of joint replacement surgery felt more positive because they could better anticipate the sounds and sights in the operating theatre.

7.3.3 Recovering

In the 'recovering' phase, three themes and eight subthemes emerged during the postoperative phase. The findings in this phase described how the participants coped with the challenges of an unfamiliar body as they began to discover, internalize and weigh the possibilities and limitations of their bodies. The participants' testimonies alluded to their struggles to make sense of the surgery outcomes with their continued pain and immobility. Some participants expressed a sense of apprehension resulting from the unexpected stressful events of wound and urinary infections, constipation and difficulty in urinating during the recovery period. Based on the cultural beliefs of 'Yin-Yang', some

Chinese participants consumed healing foods and abstained from foods that might impair wound healing within the first two weeks of surgery. The support of informal carers such as spouses, family members, home helpers and friends was vital to helping participants cope with their mobility and activities of daily living as they continued recovering at home. Participants testified to the experience of constant mental and social adjustments in coping with, and adapting to, a new life and leg. They looked forward to having a body that was in charge again, and they hoped to regain their lives so they could resume the social relationship and togetherness with family members and friends to bring meaning to their lives again.

The findings of this study have addressed the research aim and research questions—in particular, how cultural values and personal beliefs informed the participants' mental and social adjustments in coping with the debilitating pain and disability related to severe osteoarthritis. Participants used various sources of information to inform their decisions regarding surgery. They lived with fear, anxiety, apprehension and uncertainty in anticipation of their surgery, and they struggled to adapt to their unfamiliar bodies and legs, even as they tried to make sense of the outcome of their surgery. They pinned their hopes on regaining their lives in their experiential perioperative journeys.

The next section discusses the strengths of the study in relation to the methodology and research study undertaken.

7.4 Study Strengths

This study has addressed a critical gap in the knowledge of joint replacement surgery among elderly people in Singapore by qualitatively examining the perceptions of elderly participants.

The major strength of this study was the conduction of repeated interviews at different phases, which allowed the participants to reflect upon, and share, their perioperative experiences of undergoing joint replacement surgery. The

repeated interviews gave strength to this study because the participants were able to contribute explicit, detailed and rich insights relating to the preoperative, intraoperative and postoperative phases.

This is the first study that has focused on the perceptions of elderly patients undergoing joint replacement surgery in Singapore. Therefore, it provides valuable insights for nurses and other healthcare professionals regarding the perceptions of elderly Singaporean patients' perioperative experiences undergoing joint replacement surgery.

The next section presents the implications and recommendations based on the study's findings.

7.5 Implications and Recommendations

The study's findings highlight important implications and recommendations in the areas of healthcare policy, nursing policy, nursing education, patient education, nursing practice and community resources. These recommendations provide a strategic focus for both the Singapore MOH and the nursing community to improve the quality of care for elderly participants undergoing joint replacement surgery.

The next section outlines the implications and key recommendations of this study.

7.5.1 Healthcare policy

The Singapore healthcare system needs to adapt its chronic illness care coordination within and across healthcare organisations. A symbiosis is needed between a flexible and dynamic approach of health service delivery that enables environmental factors (health system, delivery system design, decision support and community resources) and the elderly patients undergoing joint replacement surgery. Patients will then be empowered to take

responsibility and ownership of their health as healthcare providers impart their clinical expertise and knowledge in promoting health.

In this study, some Chinese participants sought complementary therapies but found no relief or cure from their pain and disability before making the final decision to undergo surgery as the final option in their chronic illness trajectory. Therefore, healthcare policy needs to recognise the importance of non-biomedical health belief systems, such as Chinese medicine, in a multi-cultural society such as Singapore, as well as the associated cultural diversity within its elderly population, which enabled their decision processes.

The Singapore healthcare infrastructure needs to implement elder-friendly living environments and retirement planning schemes to support the fast-ageing population. In Singapore, the Seniors' Mobility and Enabling Fund provides funds for people aged over 60 years to live independently and be mobile within the community (Agency of Integrated Care, 2014). Retirement planning prudently supports financial self-reliance and independence in old age. An elder-friendly environment supports sustainable and positive living arrangements, which helps to maintain meaningful relationships among family members and the community over a person's lifetime.

It is recommended that the healthcare infrastructure support for elderly patients with chronic osteoarthritis undergoing joint replacement surgery be initiated by the MOH in Singapore by working collaboratively and cohesively with various healthcare organisations and agencies. The close alliance of the MOH and other organisations and agencies can lead to the creation of a robust healthcare infrastructure, such as elder-friendly living environments and retirement planning schemes.

7.5.2 Nursing policy

In the strategic planning of Singapore's nursing policy, there is an urgent need to project its nursing manpower and training to support the nursing care of elderly patients undergoing joint replacement surgery across the perioperative

care continuum. With the increasing trend of THR and TKR surgery related to osteoarthritis in Singapore, nursing resources need to meet the increasing demand of nursing staff across all levels of clinical settings of the perioperative continuum and community.

Therefore, nursing administrators need to project their nursing resources to support the increasing demand for nurses across the hospital, community, nursing homes and home care settings to support the elderly population's perioperative continuum. Nursing administrators also need to plan for continual training and education of the nursing workforce to support competent and holistic care at these different levels of care settings.

7.5.3 Nursing education

In relation to nursing education, nurse educators need to emphasise the knowledge and practice of cultural sensitivity in the delivery of patient education. The nursing process can be utilised as an educational tool to plan patient-centred nursing care based on the needs of elderly patients undergoing joint replacement surgery to ensure holistic patient care.

Healthcare organisations need to continually support pre-employment education and training (PET) and continuing education and training (CET) for nurses to increase the quality of nursing care in Singapore's multi-cultural environment. PET in nursing provides basic education and training for staff nurses or registered nurses to work in all clinical areas. CET in nursing can consider training nurses in both Advanced Diploma and Master levels across nursing specialities to prepare them to manage patient care across clinical areas, including speciality clinics, polyclinics, operating theatres, surgical wards and rehabilitative wards, to effectively meet the needs of elderly patients undergoing joint replacement surgery. In particular, nursing specialities such as community, rehabilitation and mental health nursing can support the mental and social adjustments of these elderly patients in the community.

In addition, enrolled nurses and healthcare assistants can be considered for 'in-house' training to support patient care across the perioperative care continuum. Continuing nursing education must be included as a blueprint of the national nursing policy to enable a sustainable and competent nursing profession to meet the current and future needs of elderly patients undergoing joint replacement.

7.5.4 Patient education

Currently, patient education for elderly patients undergoing joint replacement surgery is conducted by specialist nurses in preoperative areas. Patient education mainly focuses on postoperative management.

Pain was found to be expressed and managed differently by various ethnic groups. Patient education needs to incorporate relevant and individualised information relating to pain management and concerns regarding the consumption of painkillers, as most elderly patients tolerated the debilitating pain and took the prescribed medications only as a last resort when the pain was beyond their level of tolerance. In Singapore, it is essential that the nursing profession recognises the effect of cultural values and personal beliefs on the understanding of, and adherence and compliance to, pain management.

There is a need to initiate a structured and comprehensive patient education program that provides detailed explanations of relevant areas to help elderly patients and their carers cope effectively with joint replacement surgery from the time they are first diagnosed with severe knee or hip osteoarthritis until rehabilitation .

It is important that the clinical specialist nurses (CNS) and Advanced Practice Nurses (APN) introduced an education protocol on preoperative education for patients. The preoperative education needs to incorporate relevant and individualised information on: 1) the awareness of self-image, assistive devices, financial constraints and independence, mental resilience and cultural values on dietary intake after surgery; 2) pain management before and after

surgery; 3) a brief description of what to expect during surgery under regional anaesthesia, including the prospect of gaining consciousness whilst under sedation as part of the explanation of informed consent; 3) the effect of regional anaesthesia such as losing control of urination during the immediate postoperative surgery are to be clearly explained during the pre-anaesthetic assessment prior to surgery; 4) possible surgical complications such as prolonged bleeding at surgical site, the possibility of infected wounds are to be explained to both patients and carers; 5) the emphasis on exercise regime during the rehabilitative process, essential support from carers; and 6) coping and adapting to life after surgery. This new approach to patient education needs to include clear explanations that are relevant as well as individualised information in order to reduce fear, anxiety, distress, and uncertainty across the perioperative continuum.

In approaching patient education, it is essential for Singapore healthcare professionals, in particular nurses, to understand the propensity of specific outlook of the patients undergoing joint replacement surgery. Generally, the patients who adopted a positive outlook were self-motivated and take ownership of their chronic illness in seeking treatment and participating actively in their rehabilitation. Appropriate patient assessment on the different levels of motivation of patients would enable professionals to plan appropriate and individualised patient education. Healthcare professionals need to follow up closely on patients with negative outlook to reduce the fear and apprehension during their perioperative journey to promote positive adaptation and recovery.

Another avenue for patient education is that of peer support in the form of previous patients who undergone similar surgery with positive surgical outcomes and outlooks to be recruited as motivators in support groups to share their experience and stories to prospective patients of joint replacement surgery.

7.5.5 Nursing practice

The findings of this study provide valuable insights and information to nurses who provide perioperative care to elderly patients undergoing joint replacement surgery across the perioperative continuum. These insights create a better understanding in the planning of nursing interventions that focus on the perioperative needs and care of elderly patients undergoing joint replacement surgery to ensure the delivery of quality nursing care that is patient- and culture-centric.

In understanding that some elderly Singaporean participants are less expressive of pain related to surgery, nurses needs to be sensitive to patient cues of pain through continual and effective pain management strategies of severe osteoarthritis and postoperative period.

Clinical pathways for both THR and TKR surgery can be initiated or revised based on perioperative needs and concerns, as well as the cultural diversity of multi-ethnic elderly participants. Perioperative nursing at all levels needs to support the perioperative journey and rehabilitation process, as participants struggled to make sense of, and adapt to, the outcome of the surgery.

Currently, specialist nurses only provide nursing care for patients during their hospitalisation. These specialist nurses and Advanced Practice Nurses (APNs) can conduct follow-ups with these patients from the time of their diagnosis until the rehabilitation process in order to provide care continuity. The nurses can actively collaborate with other healthcare professionals, such as doctors, physiotherapists and other allied health staff, to provide continual reviews and follow-ups for these patients upon discharge. This care continuity will be the first nursing program in Singapore to provide comprehensive and holistic care throughout the perioperative continuum. It will also address the needs and concerns of elderly patients undergoing joint replacement surgery.

7.5.6 Community resources

Another recommendation is the emphasis on community resources for informal carers or caregivers who effectively support and has a positive impact on the elderly patients' perioperative journeys. The provision of support from caregivers such as spouses, family members and home helpers could be enhanced through virtual education for caregivers to help them learn and support the elderly from the time of diagnosis until the rehabilitation process. In the current study, only one female participant was discharged to the community hospital or step-down care. Step-down care forms a crucial community link in Singapore's healthcare infrastructure of integrated care. Largely, the elderly Singaporean participants preferred to recuperate in the comfort of their homes after surgery. This preference demonstrates the important role of home carers and the urgent need for the health system to support home care. Filial piety and strong family cohesion within the Singapore context provides strong support for participants' perioperative journeys. Such strong and invaluable support from informal carers ensures the successful rehabilitation of elderly Singaporeans.

The next section outlines the recommendations for future research.

7.6 Future Research

This qualitative study has explored the perceptions of elderly Singaporeans and how they coped with the mental and social adjustments of undergoing joint replacement surgery related to osteoarthritis. A limitation of this study was that it only focused on elderly patients' perceptions. Therefore, it is recommended that future research explore nurses' perceptions of nursing patients undergoing joint replacement surgery and how nurses' cultural and linguistic diversity influences their perceptions. Further research on the nursing profession should also include foreign nurses, who are increasingly employed and trained in healthcare institutions to meet the nursing shortage in Singapore.

Future research should also examine and evaluate the effectiveness of the continuum of care—from when the patient is diagnosed with osteoarthritis at the outpatient clinic until they return for outpatient follow-ups with doctors after surgery—from both the perspectives of participants and nurses across similar clinical settings. This research focus would contribute significantly to the nursing body of knowledge.

Future research is recommended to explore the effects of patient education across the perioperative care continuum, as current patient education is only conducted at the preoperative assessment area and upon the point of discharge from the hospital, with no further follow-up of patients' progress during the rehabilitation process. In this study, participants struggled to make sense of their surgery outcomes, which suggests that patient education and support are needed during the rehabilitation period. This research focus could evaluate whether such comprehensive patient education and follow-up by different specialist nurses at different time points improve the quality of patient care.

A research focus is recommended that explores caregivers' lived experiences of taking care of patients undergoing joint replacement surgery. There is a need to gain insights into caregivers' storied lives in living with these patients and helping them to regain their lives. Caregivers' perspectives and experiences are often neglected as a research focus, as patients' perspectives remain the main focus. It is recommended that future research explore caregivers' experiences using other qualitative paradigms, such as phenomenological methodology.

Although the composition of ethnic groups in this study was representative of the population of Singapore, future research should recruit more participants from more vulnerable ethnic groups such as Malay, Indian and Eurasian so that the findings are more representative of the perceptions of all ethnic groups in Singapore. A limitation of this study was that the participants were mainly Chinese. Future research could incorporate purposeful sampling to ensure that an equal number of ethnic groups, genders, religions and dialects are represented for the purpose of the generalisability of findings.

It is important that future research uses other qualitative paradigms, such as phenomenology, grounded theory or ethnography, in the exploration of experiences or perceptions of elderly patients undergoing joint replacement surgery. Different qualitative paradigms will provide a different epistemology and ontological approach compared to a descriptive qualitative methodology. It will provide an explanatory framework in understanding the perceptions or phenomenon of elderly patients undergoing joint replacement surgery across the perioperative continuum.

As pain and disability was a key concern of the elderly participants, it is recommended that a longitudinal study explore how elderly patients cope with their pain and disability related to osteoarthritis.

7.7 Summary

It is essential to understand and gain insights into elderly Singaporeans' perceptions of undergoing joint replacement surgery. This study provided valuable insights into enhancing the level of understanding of nurses and other healthcare professionals on how cultural values and personal beliefs affect the mental and social adjustments and coping strategies of elderly participants undergoing joint replacement surgery.

This study contributes significantly to the nursing body of knowledge by creating an awareness and understanding of multi-ethnic elderly Singaporeans' perceptions undergoing joint replacement surgery. With this level of knowledge and understanding, it is necessary to incorporate these findings into the nursing intervention and clinical pathways for joint replacement surgery. It also highlights the need for more focused patient education along the perioperative continuum, where a lack of patient education and information results in maladaptive patients undergoing joint replacement surgery. The outcome of this study emphasises the need to train competent nurses to support elderly patients in all areas of clinical settings to ensure positive recovery and care continuity during their perioperative journeys.

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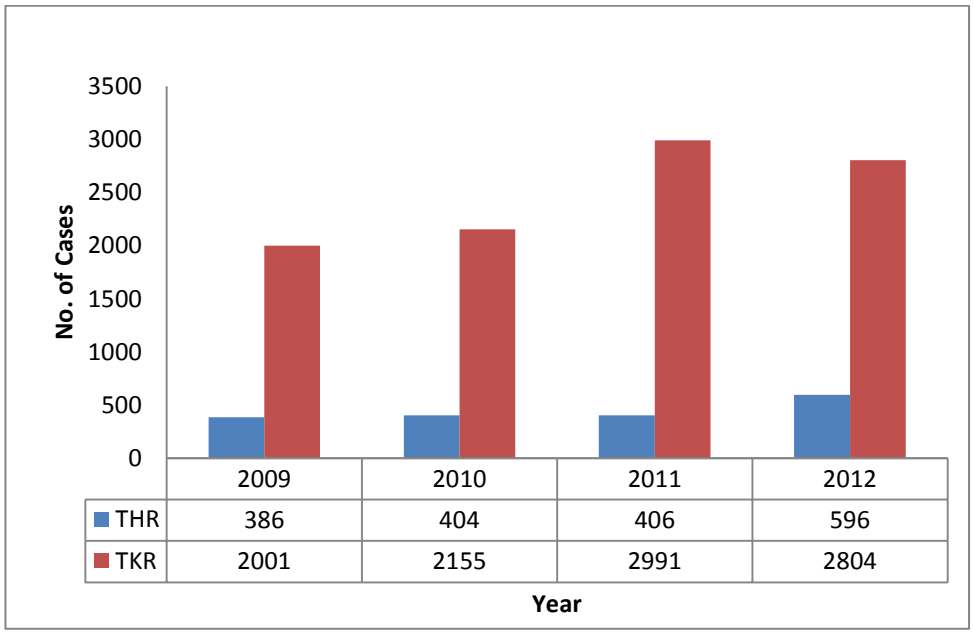
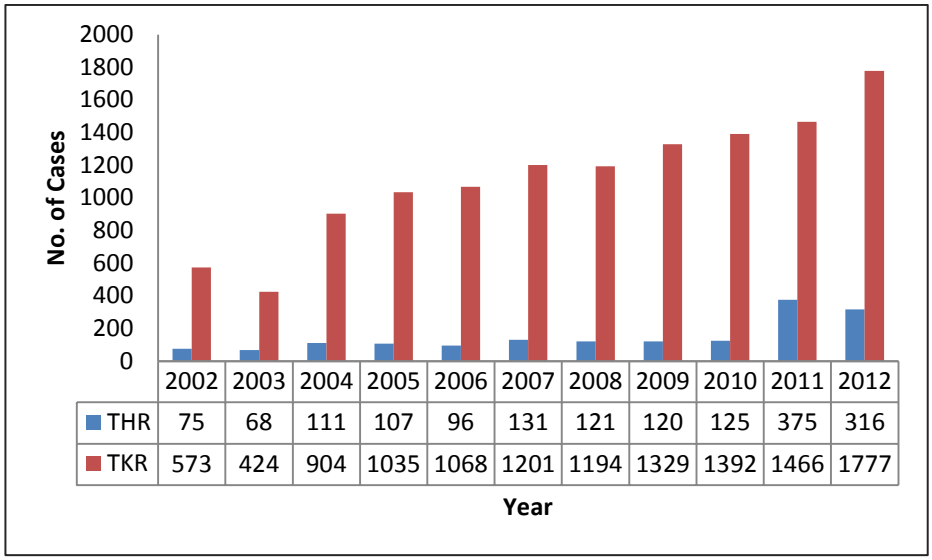
Appendix 1.1: Number of THR/TKR Cases in Singapore, 2009–2012



Adapted from Ministry of Health (2013)

Appendix 1.2: Number of THR/TKR Cases in Singapore General Hospital, 2002–2012



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
THR	75	68	111	107	96	131	121	120	125	375	316
TKR	573	424	904	1035	1068	1201	1194	1329	1392	1466	1777

Adapted from Total Hip Replacement and Total Knee Replacement, Adult Reconstruction, Singapore General Hospital, 2013

Appendix 2.1: Summary of Quantitative and Qualitative Studies

Author, year, country	Title	Type of study	Study design	Hip/ knee	Theme: Factors relating to perioperative experience							
					Waiting time	Pain and disability	Mental health	Race/ ethnicity, age and gender	Body image	Coping and social support	Patient education	Care continuity
Rat et al. 2010 France	Total hip or knee replacement for osteoarthritis: mid- and long-term quality of life.	Quantitative	Longitudinal prospective study	Hip/ knee		X	X			X		
Desmeules et al. 2010 Canada	The burden of wait for knee replacement surgery: effects on pain, function and health-related quality of life at the time of surgery	Quantitative	Longitudinal prospective epidemiological study	Knee	X	X				X		
Bachrach-Lindstrom et al. 2008 Sweden	Patients on the waiting list for total hip replacement: a 1-year follow-up study	Quantitative	Prospective observational study	Hip/ knee	X			X		X		
McHugh et al. 2008 UK	Pain, physical functioning and quality of life of individuals awaiting total joint replacement: a longitudinal study	Quantitative	Longitudinal prospective study	Hip/ knee	X	X	X					
Ackerman et al. 2011 Australia	Decline in health-related quality of life reported by more than half of those waiting for joint replacement surgery: a prospective cohort study	Quantitative	Longitudinal prospective study	Hip/ knee	X	X	X					
Montin et al. 2011 Finland	The changes in health-related quality of life and related factors during the process of total hip arthroplasty	Quantitative	Quantitative study. Likely cohort study	Hip		X		X				
Montin et al. 2009 Finland	Economic outcomes from patients' perspective and health-related quality of life after total hip arthroplasty	Quantitative	Quantitative study. Likely cohort study	Hip	X	X		X		X		
Montin et al. 2007 Finland	Anxiety and health-related quality of life of patients undergoing total hip arthroplasty for osteoarthritis	Quantitative	Longitudinal study	Hip			X					
Montin et al. 2010 Finland	Total joint Arthroplasty Patients' Perception of Received Knowledge of Care	Quantitative	Quantitative study. Likely cohort study	Hip							X	
Brownlow et al. 2001 UK	Disability and mental health of patients waiting for total hip replacement	Quantitative	Cross-sectional study	Hip	X		X					
Stomberg et al. 2006	Patients undergoing total hip arthroplasty: a perioperative pain	Quantitative	Descriptive study	Hip		X		X			X	

Author, year, country	Title	Type of study	Study design	Hip/ knee	Theme: Factors relating to perioperative experience							
Sweden	experience											
Groeneveld et al. 2008 US	Racial differences in expectations of joint replacement surgery outcomes	Quantitative	Cross-sectional study	Hip/ knee				X				
Lavernia & Contreras 2011 US	Ethnic and Racial Factors Influencing Well-being, Perceived Pain, and Physical Function After Primary Total Joint Arthroplasty	Quantitative	Retrospective cohort study	Hip/ knee				X				
McHugh & Luker 2012 UK	Individuals' expectations and challenges following total hip replacement: a qualitative study	Qualitative	Qualitative. approach unstated. Part of a mixed study	Hip/ knee		X				X	X	X
Mauleon et al. 2007 Sweden	Patients experiencing local anaesthesia and hip surgery	Qualitative	Interpretative phenomenological approach	Hip	X	X	X					X
Gustafsson et al. 2007 Sweden	The lived body and the perioperative period in replacement surgery: older people's experiences	Qualitative	Phenomenological hermeneutic approach	Hip/ knee			X		X	X		
Gustafsson et al. 2010a Sweden	The hip and knee replacement operation: an extensive life event	Qualitative	Phenomenological hermeneutic approach	Hip/ knee						X		
Gustafsson et al. 2010b Sweden	In the hands of formal carers: Older patients' experiences of care across the perioperative period for joint replacement surgery.	Qualitative	Phenomenological hermeneutic approach	Hip/ knee						X		X
Fujita et al. 2006 Japan	Qualitative study of osteoarthritis patients' experience before and after total hip arthroplasty in Japan	Qualitative	Qualitative. approach unstated	Hip		X	X		X	X		
Parsons et al. 2008 UK	Living with severe osteoarthritis while awaiting hip and knee joint replacement surgery	Qualitative	Descriptive phenomenology approach	Hip/ knee		X	X		X	X	X	
Marcinkowski et al. 2005 NZ	Getting back to the future: a grounded theory study of the patient perspective of total knee joint arthroplasty	Qualitative	Grounded theory	knee	X	X				X		
Sjoling et al. 2005 Sweden	Waiting for surgery; living a life on hold—a continuous struggle against a faceless system	Qualitative	Interpretive phenomenology approach	Hip/ knee	X	X				X		X

Appendix 2.2: Assessment of Primary Qualitative Research

Critical Appraisal Checklist (Joanna Briggs Institute, 2011)

McHugh & Luker (2012)

Title: Individuals' expectations and challenges following total hip replacement: A qualitative study

Level of evidence: Credible

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	There is congruity between the stated philosophical perspective and the research methodology.			√		Methodological approach unstated
2.	There is congruity between the research methodology and the research question or objectives.	√				
3.	There is congruity between the research methodology and the methods used to collect data.	√				
4.	There is congruity between the research methodology and the representation and analysis of data.	√				
5.	There is congruity between the research methodology and the interpretation of results.	√				
6.	There is a statement locating the researcher culturally or theoretically.	√				
7.	The influence of the researcher, and vice-versa, is addressed.	√				
8.	Participants, and their voices, are adequately represented.	√				
9.	The research is ethical according to current criteria or, for recent studies, there is	√				

	evidence of ethical approval by an appropriate body.					
10.	Conclusions drawn in the research report appear to flow from the analysis, or interpretation, of the data.	√				

Mauleon et al. (2007)

Title: Patients experiencing local anaesthesia and hip surgery

Level of evidence: Unequivocal

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	There is congruity between the stated philosophical perspective and the research methodology.	√				Phenomeno-logical hermeneutic approach
2.	There is congruity between the research methodology and the research question or objectives.	√				
3.	There is congruity between the research methodology and the methods used to collect data.	√				
4.	There is congruity between the research methodology and the representation and analysis of data.	√				
5.	There is congruity between the research methodology and the interpretation of results.	√				
6.	There is a statement locating the researcher culturally or theoretically.	√				
7.	The influence of the researcher, and vice-versa, is addressed.	√				
8.	Participants, and their voices, are adequately represented.	√				
9.	The research is ethical according to current criteria or, for recent studies, there is evidence of ethical approval by an appropriate body.	√				
10.	Conclusions drawn in the research report appear to flow from the analysis, or interpretation, of the data.	√				

Gustafsson et al. (2007)

Title: The lived body and the perioperative period in replacement surgery: Older people's experiences

Level of evidence: Unequivocal

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	There is congruity between the stated philosophical perspective and the research methodology.	√				Phenomeno-logical hermeneutic approach
2.	There is congruity between the research methodology and the research question or objectives.	√				
3.	There is congruity between the research methodology and the methods used to collect data.	√				
4.	There is congruity between the research methodology and the representation and analysis of data.	√				
5.	There is congruity between the research methodology and the interpretation of results.	√				
6.	There is a statement locating the researcher culturally or theoretically.	√				
7.	The influence of the researcher, and vice-versa, is addressed.	√				
8.	Participants, and their voices, are adequately represented.	√				
9.	The research is ethical according to current criteria or, for recent studies, there is evidence of ethical approval by an appropriate body.	√				
10.	Conclusions drawn in the research report appear to flow from the analysis, or interpretation, of the data.	√				

Gustafsson et al. (2010a)

Title: The hip and knee replacement operation: An extensive life event

Level of evidence: Unequivocal

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	There is congruity between the stated philosophical perspective and the research methodology.	√				Phenomen o-logical hermeneuti c approach
2.	There is congruity between the research methodology and the research question or objectives.	√				
3.	There is congruity between the research methodology and the methods used to collect data.	√				
4.	There is congruity between the research methodology and the representation and analysis of data.	√				
5.	There is congruity between the research methodology and the interpretation of results.	√				
6.	There is a statement locating the researcher culturally or theoretically.	√				
7.	The influence of the researcher, and vice-versa, is addressed.	√				
8.	Participants, and their voices, are adequately represented.	√				
9.	The research is ethical according to current criteria or, for recent studies, there is evidence of ethical approval by an appropriate body.	√				
10.	Conclusions drawn in the research report appear to flow from the analysis, or interpretation, of the data.	√				

Gustafsson et al. (2010b)

Title: In the hands of formal carers: Older patients' experiences of care across the perioperative period for joint replacement surgery.

Level of evidence: Unequivocal

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	There is congruity between the stated philosophical perspective and the research methodology.	√				Phenomen o-logical hermeneuti c approach
2.	There is congruity between the research methodology and the research question or objectives.	√				
3.	There is congruity between the research methodology and the methods used to collect data.	√				
4.	There is congruity between the research methodology and the representation and analysis of data.	√				
5.	There is congruity between the research methodology and the interpretation of results.	√				
6.	There is a statement locating the researcher culturally or theoretically.	√				
7.	The influence of the researcher, and vice-versa, is addressed.	√				
8.	Participants, and their voices, are adequately represented.	√				
9.	The research is ethical according to current criteria or, for recent studies, there is evidence of ethical approval by an appropriate body.	√				
10.	Conclusions drawn in the research report appear to flow from the analysis, or interpretation, of the data.	√				

Fujita et al. (2006)

Title: Qualitative study of osteoarthritis patients' experience before and after total hip arthroplasty in Japan

Level of evidence: Credible

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	There is congruity between the stated philosophical perspective and the research methodology.			√		Methodo-logical approach not stated
2.	There is congruity between the research methodology and the research question or objectives.	√				
3.	There is congruity between the research methodology and the methods used to collect data.	√				
4.	There is congruity between the research methodology and the representation and analysis of data.	√				
5.	There is congruity between the research methodology and the interpretation of results.	√				
6.	There is a statement locating the researcher culturally or theoretically.	√				
7.	The influence of the researcher, and vice-versa, is addressed.	√				
8.	Participants, and their voices, are adequately represented.	√				
9.	The research is ethical according to current criteria or, for recent studies, there is evidence of ethical approval by an appropriate body.	√				
10.	Conclusions drawn in the research report appear to flow from the analysis, or interpretation, of the data.	√				

Parsons et al. (2008)

Title: Living with severe osteoarthritis while awaiting hip and knee joint replacement surgery

Level of evidence: Unequivocal

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	There is congruity between the stated philosophical perspective and the research methodology.	√				Descriptive phenomen-ology
2.	There is congruity between the research methodology and the research question or objectives.	√				
3.	There is congruity between the research methodology and the methods used to collect data.	√				
4.	There is congruity between the research methodology and the representation and analysis of data.	√				
5.	There is congruity between the research methodology and the interpretation of results.	√				
6.	There is a statement locating the researcher culturally or theoretically.	√				
7.	The influence of the researcher, and vice-versa, is addressed.	√				
8.	Participants, and their voices, are adequately represented.	√				
9.	The research is ethical according to current criteria or, for recent studies, there is evidence of ethical approval by an appropriate body.	√				
10.	Conclusions drawn in the research report appear to flow from the analysis, or interpretation, of the data.	√				

Marcinkowski et al. (2005)

Title: Getting back to the future: A grounded theory study of the patient perspective of total knee joint arthroplasty

Level of evidence: Unequivocal

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	There is congruity between the stated philosophical perspective and the research methodology.	√				
2.	There is congruity between the research methodology and the research question or objectives.	√				
3.	There is congruity between the research methodology and the methods used to collect data.	√				
4.	There is congruity between the research methodology and the representation and analysis of data.	√				
5.	There is congruity between the research methodology and the interpretation of results.	√				
6.	There is a statement locating the researcher culturally or theoretically.	√				
7.	The influence of the researcher, and vice-versa, is addressed.	√				
8.	Participants, and their voices, are adequately represented.	√				
9.	The research is ethical according to current criteria or, for recent studies, there is evidence of ethical approval by an appropriate body.	√				
10.	Conclusions drawn in the research report appear to flow from the analysis, or interpretation, of the data.	√				

Sjoling et al. (2005)

Title: Waiting for surgery; living a life on hold—A continuous struggle against a faceless system

Level of evidence: Unequivocal

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	There is congruity between the stated philosophical perspective and the research methodology.	√				Interpretive phenomen-ology
2.	There is congruity between the research methodology and the research question or objectives.	√				
3.	There is congruity between the research methodology and the methods used to collect data.	√				
4.	There is congruity between the research methodology and the representation and analysis of data.	√				
5.	There is congruity between the research methodology and the interpretation of results.	√				
6.	There is a statement locating the researcher culturally or theoretically.	√				
7.	The influence of the researcher, and vice-versa, is addressed.	√				
8.	Participants, and their voices, are adequately represented.	√				
9.	The research is ethical according to current criteria or, for recent studies, there is evidence of ethical approval by an appropriate body.	√				
10.	Conclusions drawn in the research report appear to flow from the analysis, or interpretation, of the data.	√				

Appendix 2.3: Assessment of Primary Quantitative Research

Critical Appraisal Checklist (Joanna Briggs Institute, 2011)

Rat et al. (2010)

Title: Total hip or knee replacement for osteoarthritis: Mid- and long-term quality of life

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?	√				
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?			√		
5.	Are outcomes assessed using objective criteria?		√			Multiple measurement tools not used in standardised manner for both 3- and 10- year cohorts
6.	Was follow-up carried out over a sufficient time period?	√				10 year study, 40% response rate due to lost in follow-up
7.	Were the outcomes of people who withdrew described and included in the analysis?	√				
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Desmeules et al. (2010)

Title: The burden of wait for knee replacement surgery: Effects on pain, function and health-related quality of life at the time of surgery

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?		√			73% attrition rate
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				Identified but not dealt; left to natural process of attrition
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?	√				
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Bachrach-Lindstrom et al. (2007)

Title: Patients on the waiting list for total hip replacement: A 1-year follow-up study

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?	√				
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?		√			Number of participants varied from 226 at baseline to 210 at one week prior to surgery and 220 at one year after surgery
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

McHugh et al. (2008)

Title: Pain, physical functioning and quality of life of individuals awaiting total joint replacement: A longitudinal study

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?			√		√
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?	√				23% were available at nine months
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Ackerman et al. (2011)

Title: Decline in health-related quality of life reported by more than half of those waiting for joint replacement surgery: A prospective cohort study

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?		√			41% of participants completed baseline and preadmission assessments
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?	√				
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Montin et al. (2011)

Title: The changes in health-related quality of life and related factors during the process of total hip arthroplasty

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?	√				13% dropout rate
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?	√				
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Montin et al. (2009)

Title: Economic outcomes from patients' perspective and health-related quality of life after total hip arthroplasty

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?	√				13% dropout rate
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?	√				
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Montin et al. (2007)

Title: Anxiety and health-related quality of life of patients undergoing total hip arthroplasty for osteoarthritis

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?	√				13% dropout rate
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?	√				
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Montin et al. (2010)

Title: Total joint arthroplasty patients' perception of received knowledge of care

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?	√				13% dropout rate
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?	√				
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Brownlow et al. (2001)

Title: Disability and mental health of patients waiting for total hip replacement

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?	√				86% recruited
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?	√				
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Stomberg & Oman (2006)

Title: Patients undergoing total hip arthroplasty: A perioperative pain experience

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?	√				80%
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?	√				
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Groeneveld et al. (2008)

Title: Racial differences in expectations of joint replacement surgery outcomes

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?	√				3-stage screening to recruit final 909 participants
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?			√		909 participants after 3-stage screening; attrition rate could not be determined
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Lavernia & Contreras (2011)

Title: Ethnic and racial factors influencing well-being, perceived pain, and physical function after primary total joint arthroplasty

Level of evidence: 3

No.	Criteria	Yes	No	Unclear	Not Applicable	Comments
1.	Is sample representative of patients in the population as a whole?	√				76% recruited
2.	Are the patients at a similar point in the course of their condition/illness?	√				
3.	Has bias been minimised in relation to selection of cases and of controls?				√	Retrospective cohort study
4.	Are confounding factors identified and strategies to deal with them stated?	√				
5.	Are outcomes assessed using objective criteria?	√				
6.	Was follow-up carried out over a sufficient time period?	√				
7.	Were the outcomes of people who withdrew described and included in the analysis?				√	No withdrawal for retrospective study
8.	Were outcomes measured in a reliable way?	√				
9.	Was appropriate statistical analysis used?	√				

Appendix 2.4: Aims, Methods and Key Findings

Author, Year	Aim	Methods	Key findings
Rat et al. 2010	Compare quality of life (QOL) scores 3 and 10 years after total hip arthroplasty (THA) or total knee arthroplasty (TKA) for osteoarthritis with QOL scores in a general population. Determine factors associated with QOL after surgery.	**Design:** Longitudinal prospective **Data collection:** Population based survey QOL in 2003,*Baseline measurement Radiographs,(VAS)* 3-year cohort: (SF-36), Osteoarthritis Knee and Hip Quality of Life questionnaire (OAKHQOL) 10-year cohort: Nottingham Health Profile (NHP), Arthritis Impact Measurement Scales 2 (AIMS2) Others*:* Harris hip score (HHS)/Index of Severity for Knee osteoarthritis (ISK), Functional Comorbidity Index (FCI), Environmental factors - World Health Organization Quality of Life questionnaire-brief version (WHOQOL-BREF), Western Ontario and McMaster Universities, Osteoarthritis Index (WOMAC) Drawing of painful areas on a schema by participants **Timing:** 3, 10 years **Response rate:** n (195) =3 year 84%; n(89)-10-year 40%	*3-year and 10-year cohort* Physical functioning and role-physical or role-emotional QOL scores were lower than general population with comparable age. Increased number of comorbidities, painful locations other than THA or TKA location. 3-year cohort: Low preoperative QOL scores were predictive of impaired QOL at follow-up. 10-year cohort: Pain score, mental health and social dimensions were lower than reference population.
Desmeules et al. 2010	Examine the change in pain and function related to the knee scheduled for surgery, change in HRQOL and change in contralateral knee pain during pre-surgery wait until time of surgery.	**Design:** Longitudinal prospective epidemiological with repeated measures **Data collection:** Structured phone interview: WOMAC, SF-36 **Timing:** Pre-surgery, few days post-surgery **Response rate:** 73%	Waiting time: <3 months to >12 months: Mean = 6 months **WOMAC** Significant deterioration on the contralateral knee >6–9 months (-10.4; 95% CI -16.9,-3.9); >12 months (-10.7; 95% CI -19.7, -1.7) Significant deterioration >9–12 months: Pain (-9.9; 95% CI -19.2,-0.54); Function (-11.1; 95% CI -18.7, -3.4) **HRQOL** Significant deterioration in physical functioning >9–12 months (-11.3; 95% CI-18.4, -4.2) >12 months (-7.1;95% CI -12.9, -1.3)
Bachrach-Lindstrom et al. 2008	Evaluate the effect of waiting time on HRQOL, functional condition and dependence on help at the time of surgery and during follow-up 1	**Design:** Prospective observational **Data collection:** Nottingham Health Profile (NHP),EuroQoL,	Waiting time: 7 days–20 months Mean: 8 months, SD: 135 days Significant deterioration of HRQOL ($p<0.05$) at time of surgery

Author, Year	Aim	Methods	Key findings
	year after surgery. Elucidate possible differences between men and women.	WOMAC **Timing:** 1 week pre-surgery, 1 year post-surgery **Response rate:** 91%	Number of patients receiving support from relatives increased from 31% to 58% (122 of 210; p<0.001) during waiting period. 1-year follow-up: HRQOL and functional condition improved significantly despite wait. Support from relatives decreased to 11% (p<0.001). Long waiting time caused reduced functional condition, pain. Increased need for support from relatives, limit independence in daily life. HRQOL/functional condition: *Baseline: 1 week before surgery* Male–Female-self-care problem. No significant differences in HRQOL and functional condition between men and women. Female>male pain and discomfort dimension, anxiety/depression The longer the waiting time, the worse the deterioration (p<0.001).
McHugh et al. 2008	Investigate if pain, physical function and QOL changed among adults with osteoarthritis while on the waiting list for hip or knee joint replacement.	**Design:** Stated as longitudinal study. Likely prospective study **Data collection:** Interviews VAS, WOMAC, SF-36 **Timing:** 3 months, questionnaires sent to participants; 6 months, home visit; 9 months until joint replacement **Response rate:** 66%	Waiting time: 3–9 months Baseline data: high levels of pain as measured by VAS (mean 7.0, SD 2.2) WOMAC pain (mean 11.2, SD 3.5) WOMAC physical function (40.3, SD 12.1) 3-month compared to baseline: Significant deterioration in VAS pain scores (0.6; 95% CI, mean difference 0.3, 1.0) WOMAC pain (mean 1.2; 95% CI, mean difference 0.7, 1.8) WOMAC physical function (mean 4.8; 95% CI, mean difference 2.8, 6.7) QOL SF: 36 items, physical function, role limitation—physical and mental health were worse at 6 months than at baseline, Statistically not significant.
McHugh & Luker (Part of a larger	Detail the experiences of individuals undergoing THR and determine whether expectations were met.	**Design:** Qualitative **Data collection:** In-depth interviews with four focus areas: (1) decision to have a THR; (2) expectations of hip replacement; (3) experience and challenges of recovery and (4) support systems.	Themes/subthemes: Expectations of hip replacement - Getting back to normal - Free of symptoms

Author, Year	Aim	Methods	Key findings
study) 2012		Data saturation stated Framework analysis: 5 stages • Familiarisation of data • Identifying a thematic framework • Indexing • Charting • Mapping and interpretation Rigour: co-analysis of data by another researcher **Timing:** 6–8 months post-surgery **Response rate:** 79%	- False optimism Challenges of recovery - Feeling disabled - Confidence - Frustration - Information needs Actualities of support (professional and family) - Family - Professional involvement
Ackerman et al. 2011	Investigate changes in key indicators of wellbeing (HRQOL, health status, psychological distress and self-perceived change) among people awaiting THR or TKR.	**Design:** Prospective cohort **Data collection:** Assessment of Quality of Life (AQOL), WOMAC, Kessler Psychological Distress Scale **Timing:** Baseline—on waiting list Preadmission—before surgery **Response rate:** Baseline data: n=328; Baseline and preadmission: n=41%	Waiting time: 69% waited ≥6 months for surgery (median 286 days, IQR 169–375 days) 53% experience decline in HRQOL compared to general population. 25% decline in health status over waiting period, with high prevalence of psychological distress at preadmission. Significant dimensions worsened during preoperative wait: pain, fatigue, quality of life, 96 confidence in managing their health (55%)
Montin et al. 2011	Examine changes of HRQOL and related factors in patients undergoing THA.	**Design:** Likely longitudinal prospective **Data collection:** Self-administered Sickness Impact Profile (SIP) **Timing:** Before surgery (baseline), 3 months and 6 months post-surgery **Response rate:** 87%	Mean waiting time: 4.8 months. ¼ (n = 26) had previously been on a waiting list at another hospital for an average of 12.4 months. Mean total HRQOL baseline 13.4 SD 9.7, 3 months, 7.2, SD 8.5, p<0.002; 6 months, 6.0 SD 7.7 p<0.002. Significant compared with baseline. Significant physical and psychosocial dimensions of HRQOL. Physical dimension baseline 16.6 SD13.1; 3 months 8.5 SD 11.5, p<0.002; 6 months 6.3 SD 10.0, p<0.002. Psychosocial dimension baseline 9.2 SD 9.8, 3 months 4.4 SD 6.8, p<0.002, 6 months 3.9 SD 6.2 p<0.002. Baseline mean preoperative pain 3.1 SD 1.1, at 3 months 0.6 SD 0.9 and at 6 months

Author, Year	Aim	Methods	Key findings
			0.5 SD1.1. At 6 months 72% of patients reported no pain at all. Female>male pain before surgery (p=0.016). Older patients had more preoperative pain (p=0.023).
Montin et al. 2009	Examine whether the use of services or out-of-pocket costs were associated with patients' HRQOL or with background factors.	**Design:** Quantitative study; likely longitudinal prospective **Data Collection:** Self-administered Sickness Impact Profile (SIP) **Timing:** Before surgery (baseline), 3 months and 6 months post-surgery **Response rate:** 87%	Waiting time: short waiting time used less home help services, more physiotherapy at 1 month than others. HRQOL: Older patients had more preoperative pain (p=0.023). Patients' total HRQOL improved throughout their recovery from the preoperative mean of 13.4 (SD 9.7) to 7.2 (SD 8.5) at 3 months, and further to 6.0 (SD 7.7) at 6 months. The worse the patients' HRQOL before surgery, the more home nursing throughout recovery, physiotherapy at 2 months, home help services at 3 and 6 months, and transportation at 1, 3 and 6 months was used. At 3 and 6 months after surgery, the same trend continued. Patients' HRQOL compared with total costs: no statistically significant correlations before surgery or at 3 and 6 months postoperatively. Postoperative pain*:* Patients who experienced: more pain at 1 and 3 months used more home help service at 3 months, pain at 6 months used more home help service, more pain before surgery used more home help services and transportation. Women used more home help services than men at 1(p=0.003), 2(p=0.005) and 3(p=0.009) months, more transportation (p = 0.030) at 1 month and more home nursing (p = 0.014) at 2 months.
Montin et al. 2007	Evaluate patients' anxiety and its possible relationship with HRQOL before and after surgery.	**Design:** Quantitative study; likely longitudinal prospective **Data collection:** Self-administered Sickness Impact Profile (SIP), State Trait Anxiety Inventory (STAI) **Timing:** Before surgery (baseline), 3 months and 6 months post-surgery **Response rate:** 87%	No significant correlation between preoperative trait anxiety and state anxiety before or after surgery. Before surgery: patients' trait and state anxiety - moderate. Patients' pre-operative trait anxiety impaired HRQOL both before and after surgery.

Author, Year	Aim	Methods	Key findings
			After surgery, state anxiety remained at a moderate level. No relationship between state anxiety and HRQOL. HRQOL improved throughout their recovery from the preoperative mean of 13.4 (SD 9.7) to 7.2 (SD 8.5) at 3 months, and further to 6.0 (SD 7.7) at 6 months. Preoperative state anxiety: significant negative correlation with preoperative psychosocial dimension of HRQOL.
Montin et al. 2010	Describe total joint arthroplasty patients' perceptions of received knowledge and related factors influencing this perception on discharge.	**Design:** Quantitative study; likely longitudinal prospective **Data collection:** Received knowledge of hospital **Timing:** A few weeks before admission to hospital **Response rate:** 65%	Perceived most knowledge on the biophysiological dimension and least on the financial dimension. Discharge destination and positive evaluation of hospitalisation related to perceptions of knowledge received.
Brownlow et al. 2001	Examine the relationship between physical function and mental health of patients waiting for THR surgery, and the relationship between physical and social function and mental health to time spent waiting for surgery.	**Design:** Cross-sectional **Data collection:** Postel hip scoring system; SF-36; General Health Questionnaire (GHQ); Hospital Anxiety and Depression Scale (HADS) **Timing:** Attendance at preoperative assessment clinics at least 6 weeks pre-surgery **Response rate:** 85%	Waiting time: 1–26 months; median, 6 months. 25% clinically significant mood disorders; 25% borderline range. Participants with longest preoperative waiting time were no worse on any of the outcome measures, and their mental health was better. Mental disorders were common in patients waiting for hip replacements but not directly related to hip function, and their origins were unknown
Stomberg & Oman 2006	Evaluate patients' perioperative pain experience after THR and patients' satisfaction with pain management.	**Design:** Descriptive design and comparative design; postoperative pain management (POPM) training programme by specialist nurses **Data collection:** 17-item questionnaire **Timing:** Fourth postoperative day or within a week after discharge **Response rate:** 87%	Waiting period: Not stated. A higher postoperative pain experience has significant higher preoperative pain. Females: higher pain experience than males (p=0.005). Older patients: significant difficulty understanding VAS than younger patients (p=0.001); decreased average pain (p=0.015).
Mauleon et al. 2007	Show what the experience of local anaesthesia and a surgical situation meant to patients.	**Design:** Interpretative phenomenological **Data collection:** Interview, context: moment you arrived until you left the surgery department and placed on an ordinary hospital bed **Timing:** 5–10 days post-surgery	Theme/subthemes: Compromised well-being and comfort - Sensing pain - Feeling alienation and experiencing surroundings

Author, Year	Aim	Methods	Key findings
		Response rate: 7 patients	as unreal - Sensing trust and distrust
Groeneveld et al. 2008	Measure racial differences using a well-validated survey instrument. Determine whether differences can be explained by racial variations in disease severity, socioeconomic factors, literacy or trust.	**Design:** Cross-sectional **Data collection:** Face-to-face or phone interview; Joint Replacement Expectations Survey (JRES) **Timing:** Not stated **Response rate:** 909 male patients; attrition rate not determined	African American vs. Whites: significantly higher pain scores and lower expectation on surgical outcomes, more functional impairment in osteoarthritis.
Lavernia & Contreras 2011	Evaluate the influence of race and ethnicity on well-being, pain and function after total joint arthroplasty. Determine whether race, ethnicity, sex and joint involvement influence perceived function and pain after total joint arthroplasty.	**Design:** Retrospective cohort **Data collection:** Screening of records of joint registry patients (June 1992–June 2007) underwent primary THA or primary TKA with completed measures of preoperative evaluation Quality of Well-Being (QWB) scores; SF-36 WOMAC; Orthopaedic knee scores (Hospital for Special Surgery [HSS] score, Knee Society knee score [KSKS]), Orthopaedic hip scores (Harris hip score [HHS], Merle d'Aubigne´ Postel score. **Timing:** 2 years of data **Response rate:** Reviewed 1,749 case records (739 hips and 1,010 knees)	Preoperative: African–American, worse scores in perceived well-being and function compared to Whites. Postoperative: All racial/ethnic groups have substantial improvement. Women: worse scores than males
Gustafsson et al. 2007	Explore older people's experiences of their lived bodies during the perioperative period for a hip or knee replacement.	**Design:** Qualitative longitudinal, phenomenological hermeneutic approach **Data collection:** Interview **Timing:** 1) Upon listed for surgery; 2) day before surgery; 3) before 1 month post-op; 4) 6 months post-op; 5) 12 months post-op **Response rate:** 12 participants (6 female, 6 male); 9 THR and 3 TKR Data analysis Latent qualitative content analysis outlined by Graneheim & Lundman (2004)	Themes & subthemes 4 themes (first analysis) - Ability and appearance of the body - Attitudes towards the body - Emotions connected to the body - Anticipations (dreams and apprehension) regarding the body. 6 themes (final analysis) - Deteriorating and painful body anticipates becoming able-bodied through surgery • Having the body, ability and image of body, always on one's mind • Dreaming of becoming as able-bodied as previously in life - Frightened and mortal body • Revealing fears of bodily harm and death due to unsuccessful surgery

Author, Year	Aim	Methods	Key findings
			- A defenceless and renounced body • Disclosing fearful and appreciative bodily experiences from surgery - An unfamiliar body • Realising the effects of surgery on one's body • Conquering an unfamiliar and incapable body - An adjustable body • Discovering possibilities and limitations for the body • Adjusting to changes in one's body, due to the effects of surgery - Body in charge • Becoming the person in charge of the body • Unexpected consequences on one's body due to surgery
Gustafsson et al. (2010a)	Illuminate the meaning of reflections related to hip and knee replacement surgery.	**Design:** Qualitative longitudinal; phenomenological hermeneutic approach **Data collection:** Interview **Timing:** 1) Upon listed for surgery; 2) day before surgery; 3) before 1 month post-op; 4) 6 months post-op 5) 12 months post-op **Response rate:** 12 participants (6 female, 6 male); 9 THR and 3 TKR Data analysis Lindseth & Norberg (2004), Method inspired by Ricoeur's interpretation theory: Naïve understanding, Structural analysis	Themes & subthemes - Choosing the challenge • Getting ready for the operation • Operation generates hope • Operation generates fear - Past memories connect to current situation - Moving from happiness to ordinary everyday life • Good times grow • Ordinary everyday life - Moving from despair towards reluctant - Acceptance of unexpected bad conditions for everyday life
Gustafsson et al. (2010b)	Illuminate the meaning of care from all formal carers before, during and after joint replacement surgery of the hip or knee.	**Design:** Qualitative longitudinal; phenomenological hermeneutic approach **Data collection:** Interview **Timing:** 1) Upon listed for surgery; 2) day before surgery; 3) before 1 month post-op; 4) 6 months post-op; 5) 12 months post-op **Response rate:** 12 participants (6 female, 6 male); 9 THR and 3 TKR Data analysis Lindseth & Norberg (2004),	Themes & subthemes - Who to turn to for guidance across the perioperative period? • Which formal carers share reliable information about joint replacements? • Importance of reliable information from formal carers - Formal carers control the process of care • gatekeepers of care; in charge

Author, Year	Aim	Methods	Key findings
		Method inspired by Ricoeur's interpretation theory: Naïve understanding, Structural analysis	- Effect of formal carers care across the perioperative period • Each encounter with formal carers has an effect • Continuous encounters with a formal carer generates well-being and courage towards the goal of independence - Reflections of care from formal carers across the perioperative period
Fujita et al. 2006	Describe osteoarthritis patients' experience before and after THA in order to have a better understanding of patients' perspectives on THA.	**Design:** Qualitative **Data collection:** Semi-structured interviews **Timing:** At follow-up visits **Response rate:** 20 participants (13 female, 7 male) Data analysis: content analysis	Themes & subthemes - Onset of osteoarthritis to preoperative period: Life restricted by pain and disability • Inferiority complex related to disability • Worsening pain/disability • Difficulties with day-to-day activities • Trying alternative therapies • Unbearable pain - Postoperative period until 6 weeks • Freedom from restrictions • Improvement in pain and locomotion • Expectations for improvement • Trial and error at home • Distress over body image • Anxiety over prosthesis - Postoperative period from 6 months to several years: Adaptation to life with a prosthesis • Fulfilling one's role • Getting used to the prosthesis • Inconvenience with limited flexion • Acceptance of disability
Parsons et al. 2008	Explore the lived experiences of patients with severe osteoarthritis of the hip or knee joint while awaiting joint replacement surgery.	**Design:** Descriptive phenomenology **Data collection:** Unstructured interviews **Timing:** Preoperative assessment **Response rate:** 6 participants (3 male, 3 female) Data analysis: Giorgi's (1985) 7 procedural steps, Peer validation and verification performed by researcher-practitioner	Waiting time: 4–6 months Themes & subthemes - Living and coping with pain • Variations in levels of pain • Day and night pain • Factors affecting pain • Psychological aspects of living with pain

Author, Year	Aim	Methods	Key findings
			- Not being able to walk and move around • Loss of independence • Employment/unemployment/early retirement - Coping with everyday activities • Hygiene and dressing • Safety/risks/adaptations • Shopping/outdoor activities - How others see me • Using a walking stick • Having a disability - Advice and support • Information • Support • Waiting • Psychological aspects of living with osteoarthritis - Effect on family, friends and helpers • Feelings of depression (low mood) • Lack of understanding • Physical dependency
Marcin-kowski et al. 2005	Describe the experience of adults with osteoarthritis who had undergone a total knee joint arthroplasty (TKJA)	**Design:** Grounded theory **Data collection:** Preoperative education**,** unstructured (Montin et al., 2011) interviews **Timing:** Post-surgery 3 weeks to 3 months **Response rate:** 9 participants (4 male, 5 female) Data analysis: Glaser Causal Model six Cs (1978); Patient validation	Waiting time: 2 years - Enduring • Hurting, struggling, waiting • Seeking comfort, looking ahead - Thinking twice • Looking after myself, giving it time, accepting help, thinking twice, avoiding risk - Keeping faith • Having attitude, striking barriers, interacting with health professionals • Participating in recovery • Getting back to normal
Sjoling et al. 2005	Explore people's lived experience of being on the waiting list for arthroplastic surgery on the knee or hip and its effect on daily life	**Design:** Interpretive phenomenology **Data collection:** Interviews **Timing:** 9 TKA participants interviewed 1 week post-surgery, 9 osteoarthritis hip on waiting list. Date of surgery pending at time of	Waiting period: 7–16 months Themes - Pain restricting life activities - A life on hold—a continuous struggle against a

Author, Year	Aim	Methods	Key findings
		interview **Response rate:** 18 people (9 female, 9 male) Data analysis Benner (1994b), Chesla (1988),Van Manen (1997)	faceless system - Living an undignified, meaningless life due to pain and disability - Caring needs met—obtaining/establishing a trusting relationship with health-care representatives - Living a full life—despite pain, disability and the uncertainty of waiting for surgery - Living in a supportive world

Appendix 4.1: Semi-structured Interview Guide for Interview 1

Semi-structured interviews guided by the subject questions will be used during the face-to-face interviews of the participants by the Principal Investigator to elicit rich, textured data of the perceptions of perioperative experiences undergoing joint replacement surgery. Focus or probing questions will only be used to elicit more details and insights during the course of the interview.

Interview 1 (3rd–10th postoperative days at the Day Room/participant's home or choice of venue)

1. <u>Subject Questions</u>

a) Can you describe your experience living with knee/hip osteoarthritis before the surgery?

b) Can you describe your surgical experience undergoing knee/hip surgery?

c) Can you describe your perception of the care continuity before/during your surgery?

2. <u>Focus Questions</u>

a) How was your pain experience while waiting for surgery?

b) How was your pain experience after surgery?

c) How was your quality of life while waiting for surgery?

d) How have you been coping at home or at work while waiting for scheduled surgery?

e) How was your social support (caregiver—significant other/s or employed helper/s) in helping you to cope with your condition at home while you were waiting for scheduled surgery?

f) How was your experience of the care rendered by the nurses, doctors and allied health staff before, during and after the surgery?

g) How was your surgical experience in the operating theatre?

h) How does your cultural background or ethnicity influence your perioperative experience of your surgery?

Sample approach to interview 1

Interview	Prompts
Preparation Phase / Initial phase	
Good afternoon, <name of patient>, my name is <name of researcher>. How are you feeling today?	
Orientation phase	
Can you recall my explanation to you on the purpose of study at the preadmission period before you consented to your participation to this study? I would like to ask you some questions for the purpose of this study. This interview will take about an hour. It will focus on the period that you discussed and decided with your doctor to undergo surgery, the waiting period and going into the operating theatre until this time after your surgery. Please feel free to stop the session at any time if you are feeling unwell.	
Substantive phase	
	Knee, Hip
Can you share how you have been coping while waiting for surgery?	• Pain • Activities of daily living • Social support • Social interaction at work and at home • Cultural influence • Body image • Mental health • Prehabilitation
Can you share your experience of the care rendered while waiting for surgery?	• Nurses • Doctors • Allied health workers • Waiting period at Same Day Surgery • Care continuity
Can you share your surgical experience in the operating theatre?	• Feeling • Sounds • Conversation • Nurses • Anaesthetist • Surgeon • Health care assistants • Care continuity

Interview	Prompts
Can you share your experience of the care rendered after the surgery?	• Nurses • Doctors • Allied health workers • Significant others • Employed carers • Care continuity
Closure phase	
Thank you for taking time for this interview. Is there anything else that you would like to share with me in regards to your surgery? I will visit you again for the follow-up on the 2nd interview. Please feel free to call me if you have any concerns or need any clarification in regards to the study and interview. If necessary, I will approach you to verify some descriptions in the interview.	

Revised sample approach to interview 1

*** Denotes change**

Interview	Prompts
Preparation Phase / Initial phase	
Good afternoon, <name of patient>, my name is <name of researcher>. How are you feeling today?	
Orientation phase	
Can you recall my explanation to you on the purpose of study at the preadmission period before you consented to your participation to this study? I would like to ask you some questions for purpose of this study. *** This interview will take about an hour. It will focus on the period that you had knee/hip osteoarthritis until this time after your surgery.** Please feel free to stop the session at any time if you are feeling unwell.	
Substantive phase	
	Knee, Hip
Can you share how you have been coping while waiting for surgery?	• Pain • Activities of daily living • Social support • Social interactions at work and at home • *** Religious faith**

Interview	Prompts
	• Cultural influence • Body image • Mental health • Prehabilitation
Can you share your experience of the care rendered while waiting for surgery?	• Nurses • Doctors • Allied health workers • Waiting period at Same Day Surgery • Care continuity
Can you share your surgical experience in the operating theatre?	• Feeling • Sounds • Conversation • Nurses • Anaesthetist • Surgeon • Health care assistants • Care continuity
Can you share your experience of the care rendered after the surgery?	• Nurses • Doctors • Allied health workers • Significant others • Employed carers • Care continuity
Closure phase	
Thank you for taking time for this interview. Is there anything else that you would like to share with me in regards to your surgery? I will visit you again for the follow-up on the 2nd interview. Please feel free to call me if you have any concerns or need any clarification in regards to the study and interview. If necessary, I will approach you to verify some descriptions in the interview.	

Appendix 4.2: Semi-structured Interview Guide for Interview 2

Interview 2 (at the 1st outpatient follow-up, which is around one month after discharge at the orthopaedic out-patient consultation room or study participant's home)

1. Subject Questions

a) Can you describe your surgical experience undergoing knee/hip after the surgery?

b) Can you describe your perception of the care continuity after your surgery?

1. <u>Focus Questions</u>

a) How was your pain experience in relation to your surgery?

b) How was your quality of life in coping with your surgery?

c) How have you been coping after your surgery?

d) How have you been coping with your rehabilitation after surgery?

e) How was your social support (caregiver—significant other/s or employed helper/s) in helping you to cope with your recovery at home after surgery?

f) How was your experience of the care rendered by the nurses, doctors and allied health staff after your surgery?

g) How does your cultural background or ethnicity influence your postoperative experience of your surgery?

Sample approach to interview 2

Interview	Prompts
Preparation Phase / Initial phase	
Good afternoon, <name of patient>, my name is <name of researcher>. How are you feeling today?	
Orientation phase	
We had a good interview session together about a month ago. I would like to continue from where you shared your perioperative experience with me. This is the second interview that I will take you through, and similarly, this session will take about an hour. I am keen to understand your perioperative experience undergoing joint replacement surgery. For this interview, we will focus on your postoperative experience until this time after your surgery. Please feel free to stop the session at any time if necessary.	
Substantive phase	
Can you share on how you have been coping after the surgery?	• Pain • Activities of daily living • Social support • Social interactions at work and at home • Cultural influence • Rehabilitation • Body image • Mental health
Can you share your experience of the care rendered after the surgery?	• Nurses • Doctors • Allied health workers • Significant others • Employed carers • Care continuity
Can you share your experience of the care rendered as you undergo rehabilitation?	• Physiotherapist • Health care workers • Care continuity
Closure phase	
Thank you for taking time for this interview. Is there anything else that you would like to share with me in regards to your surgery? I will get back to you to verify the correctness of the transcription	

Interview	Prompts
of your interviews if needed.	

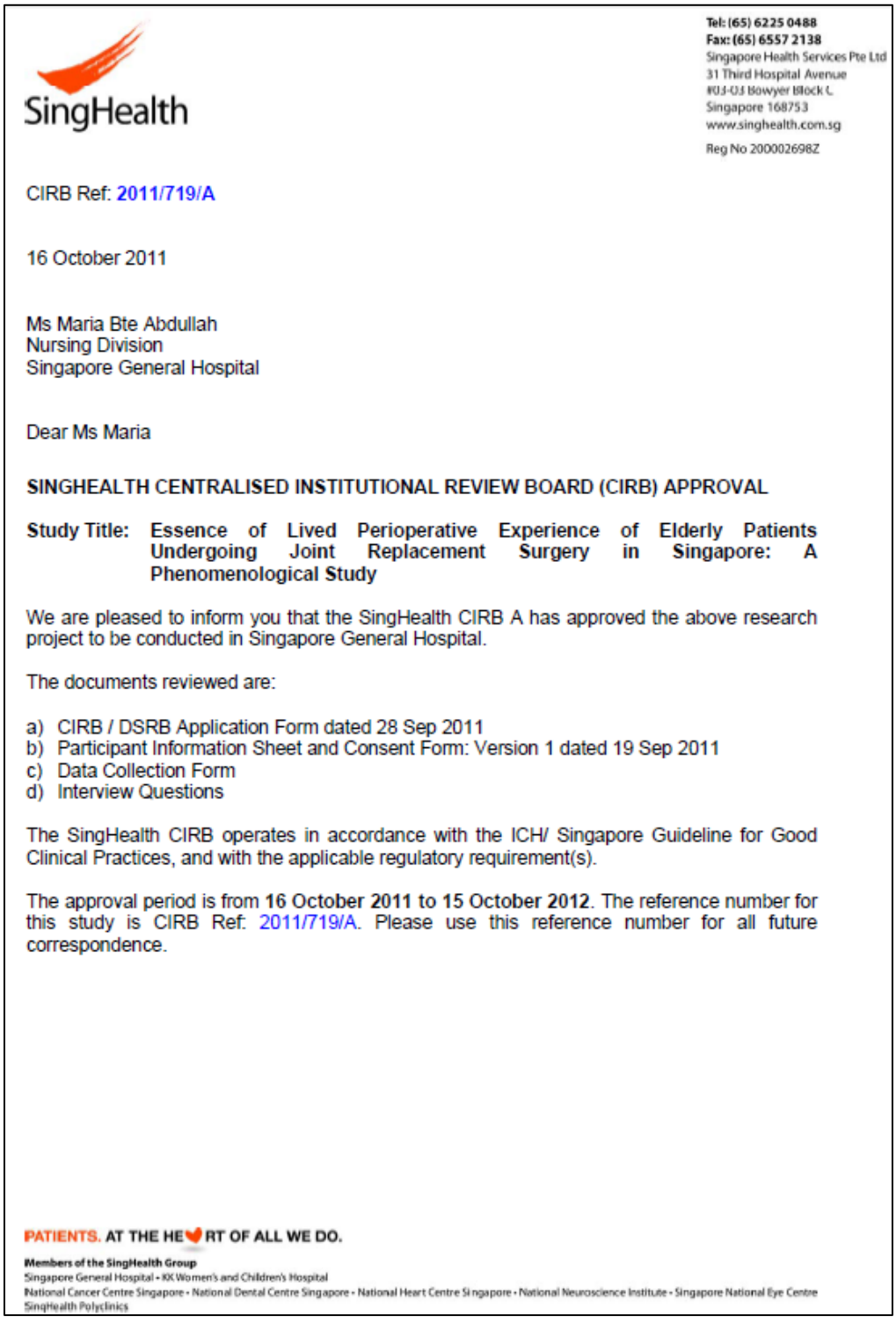
Revised sample approach to interview 2

*** Denotes change**

Interview	Prompts
Preparation Phase / Initial phase	
Good afternoon, <name of patient>, my name is <name of researcher>. How are you feeling today?	
Orientation phase	
We had a good interview session together about a month ago. I would like to continue from where you shared your perioperative experience with me. This is the second interview that I will take you through, and similarly, this session will take about an hour. I am keen to understand your perioperative experience undergoing joint replacement surgery. For this interview, we will focus on your postoperative experience until this time after your surgery. *** You are free to connect back into your preoperative until the immediate postoperative period if you feel a need to connect your experience.** Please feel free to stop the session at any time if necessary.	
Substantive phase	
Can you share on how you have been coping after the surgery?	• Pain • Activities of daily living • Social support • Social interactions at work and at home • Cultural influence • *** Religious faith** • Rehabilitation • Body image • Mental health
Can you share your experience of the care rendered after the surgery?	• Nurses • Doctors • Allied health workers

Interview	Prompts
	• Significant others • Employed carers • Care continuity
Can you share your experience of the care rendered as you undergo rehabilitation?	• Physiotherapist • Therapist • Health care workers • Care continuity
Closure phase	
Thank you for taking time for this interview. Is there anything else that you would like to share with me in regards to your surgery? I will get back to you to verify the correctness of the transcription of your interviews if needed.	

Appendix 4.3: SingHealth Centralised Institutional Review Board (CIRB) Approval



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CIRB Ref: 2011/719/A

16 October 2011

Ms Maria Bte Abdullah
Nursing Division
Singapore General Hospital

Dear Ms Maria

SINGHEALTH CENTRALISED INSTITUTIONAL REVIEW BOARD (CIRB) APPROVAL

Study Title: **Essence of Lived Perioperative Experience of Elderly Patients Undergoing Joint Replacement Surgery in Singapore: A Phenomenological Study**

We are pleased to inform you that the SingHealth CIRB A has approved the above research project to be conducted in Singapore General Hospital.

The documents reviewed are:

a) CIRB / DSRB Application Form dated 28 Sep 2011
b) Participant Information Sheet and Consent Form: Version 1 dated 19 Sep 2011
c) Data Collection Form
d) Interview Questions

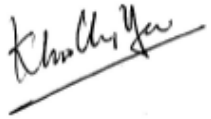
The SingHealth CIRB operates in accordance with the ICH/ Singapore Guideline for Good Clinical Practices, and with the applicable regulatory requirement(s).

The approval period is from **16 October 2011 to 15 October 2012**. The reference number for this study is CIRB Ref: 2011/719/A. Please use this reference number for all future correspondence.

The following are to be observed upon CIRB Approval:

1. No subject should be admitted to the trial before the Health Sciences Authority issues the Clinical Trial Certificate. (only applicable for drug-related studies).
2. The Principal Investigator should ensure that this study is conducted in compliance with the Singapore Guideline for Good Clinical Practice, the ethical guidelines of which are applicable to all studies to be carried out, and to ensure that the study is carried out in accordance to the guidelines and the submitted protocol. The Principal Investigator should meet with his collaborator(s) regularly to assess the progress of the study, and be familiar and comply with all applicable research policies in the Institution.
3. No deviation from, or changes of, the protocol should be initiated without prior written CIRB approval of an appropriate amendment, except when necessary to eliminate immediate hazards to the subjects or when the change(s) involve(s) only logistical or administrative aspects of the trial (e.g. change of monitor(s), telephone number(s).
4. Only the approved Patient Information Sheet and Consent Form should be used. It must be signed by each subject prior to enrolling in the study and initiation of any protocol procedures. Two copies of the Informed Consent Form should be signed and dated. Each subject or the subject's legally accepted representative should be given a copy of the signed consent form. The remaining copy should be kept by the PI / medical record.
5. The Principal Investigator should report promptly to the SingHealth CIRB of:
   i. Deviations from, or changes to the protocol including those made to eliminate immediate hazards to the trial subjects.
   ii. Changes increasing the risk to subjects and/or affecting significantly the conduct of the trial.
   iii. All serious adverse events (SAEs) and adverse drug reaction (ADRs) that are both serious and unexpected.
   iv. New information that may affect adversely the safety of the subjects or the conduct of the trial.
   v. Completion of the study.
6. Study Status Report should be submitted to the SingHealth CIRB for the following:
   i. Annual review: Status of the study should be reported to the CIRB at least annually using the Study Status Report.
   ii. Study renewal: the Study Status Report is to be submitted at least one month prior to the expiry of the approval period. A valid CIRB renewal is essential, as any research performed outside of an approved time frame is not legal, and thus not covered by the hospital's research insurance in case of unexpected adverse reactions.
   iii. Study completion or termination: the Final Report is to be submitted within three months of study completion or termination.

Yours sincerely,



Dr Khoo Chong Yew
Chairman
SingHealth Centralised Institutional Review Board A

Appendix 4.4: Participant Information Sheet

PARTICIPANT INFORMATION SHEET

You are being invited to participate in a research study.

Before you take part in this research study, the study must be explained to you and you must be given the chance to ask questions. Please read carefully the information provided here. If you agree to participate, please sign the informed consent form. You will be given a copy of this document to take home with you.

STUDY INFORMATION			
Protocol Title:			
Essence of lived perioperative experience of elderly patients undergoing joint replacement surgery in Singapore: A phenomenological study			
Principal Investigator(s):			
Name	**Rosy Tay Swee Cheng**	**Maria bte Abdullah (site PI)**	
Department	**ALCNS, National University of Singapore**	**Ward 75, Orthopaedic Department, Singapore General Hospital**	
Address	**Blk 237, Hougang St 21, #10-396, S530237**	*Singapore General Hospital*, **Outram Road Singapore 169608**	
Phone	**97569248**	**93292591**	
Sponsor: Nanyang Polytechnic			
Funding Organisation: MOH Nursing Research Committee (MOHNRC)			
PURPOSE OF THE RESEARCH STUDY			
You are being invited to participate in a research study to share your insights of your surgical experience and perspectives on the continuity of care from the time you decided to undergo surgery until your recovery from surgery. You are selected as a			

possible participant in this study because you are undergoing Total Hip Replacement or Total Knee Replacement Surgery.

This study will recruit 30 participants from Singapore General Hospital over the period of November 2011 to December 2012. About 30 participants will be involved in this study.

STUDY PROCEDURES AND VISIT SCHEDULE

If you agree to take part in this study, you will accompany the Principal Investigator to a quiet and private room at the ward, outpatient clinic or you can ask for the interview to be conducted at the comfort of your home. During the interview, you will be asked to share your insights of your surgical experience and perspectives on the continuity of care from the time you decided to undergo either Total Hip Replacement or Total Knee Replacement Surgery until your recovery from surgery.

This interview will be digitally audio-recorded and later transcribed (typed up from audio to written form) for the purpose of data analysis, but your privacy and your identity will be protected. It is expected that the duration of each interview will be one hour. Interviews will be conducted in English.

Schedule of interviews

First interview: one interview session within the 3rd to 10th postoperative day in a quiet room in the recuperating ward or your home.

Second interview: one interview session during your 1st outpatient follow-up, which may be about 4–5 weeks after surgery at a quiet and private outpatient consultation room or your home.

Follow-up: consists of reading through the content of your interviews.

YOUR RESPONSIBILITIES IN THIS STUDY

If you agree to participate in this study, you should*:*

Keep your study appointments. If it is necessary to miss an appointment, please contact the study staff to reschedule as soon as you know you will miss the appointment.

WITHDRAWAL FROM STUDY

You are free to withdraw your consent and discontinue your participation at any time without prejudice to you or effect on your medical care. If you decide to stop taking part in this study, you should tell the Principal Investigator.

The Principal Investigator and/or the Sponsor of this study may stop your participation

in the study at any time for one or more of the following reasons:

Failure to attend the interview sessions as indicated in the schedule of visits.

The study is cancelled.

Other administrative reasons.

Unanticipated circumstances.

POSSIBLE RISKS, DISCOMFORTS AND INCONVENIENCES

There are risks, discomforts and inconveniences associated with any research study. These deserve careful thought.

During the first interview, you may experience some postoperative pain and discomfort just prior to, or during, the interview session. The Principal Investigator will then ask you if you would like to proceed or reschedule the interview session.

You have the option to undergo both interview sessions at the institution or your home.

POTENTIAL BENEFITS

There is no assurance that you will benefit from this study. However, your participation may contribute to the nursing knowledge on the lived perioperative experience of elderly patients undergoing Total Hip Replacement or Total Knee Replacement surgery.

SUBJECT'S RIGHTS

Your participation in this study is entirely voluntary. Your questions will be answered clearly and to your satisfaction.

CONFIDENTIALITY OF STUDY AND MEDICAL RECORDS

Information collected for this study will be kept confidential. Your records, to the extent of the applicable laws and regulations, will not be made publicly available. Only your Investigator(s) will have access to the confidential information being collected.

However, the Sponsoring company, MOH Nursing Research Committee, Regulatory Agencies, Institution Review Board and Ministry of Health will be granted direct access to your original medical records to check study procedures and data without making any of your information public. By signing the Informed Consent Form attached, you or your legal representative is authorising such access to your study and medical records.

Data collected and entered into the Data Collection Form(s) are the property of the *National University of Singapore*. In the event of any publication regarding this study,

your identity will remain confidential.

COSTS OF PARTICIPATION

You will be reimbursed for your time, inconvenience and transportation costs as follows:

If you complete the study, you will be paid $25.00 upon completion of each interview session.

If you do not complete the study for any reason, you will be paid $25.00 upon completion of an interview session.

RESEARCH-RELATED INJURY AND COMPENSATION

The Hospital does not make any provisions to compensate study subjects for research-related injury. However, compensation may be considered on a case-by-case basis for unexpected injuries due to non-negligent causes.

By signing this consent form, you will not waive any of your legal rights or release the parties involved in this study from liability for negligence.

WHO TO CONTACT IF YOU HAVE QUESTIONS

If you have questions about this research study and your rights, or in the case of any injuries during the course of this study, you may contact the Principal Investigator (Rosy Tay, contact no. 9756 8248).

If you have questions about the study or your rights as a participant, you can call the SingHealth Centralised Institutional Review Board, which is the committee that reviewed and approved this study. The telephone number is 6323 7515 during office hours (8:30 am to 5:30 pm).

CONSENT BY RESEARCH SUBJECT

Details of Research Study

Protocol Title:

Essence of lived perioperative experience of elderly patients undergoing joint replacement surgery in Singapore: A phenomenological study

Principal Investigator:

Name: Rosy Tay Swee Cheng, Address: Blk 237, Hougang St 21, #10-396, S530237, Phone No.: 9756 8248

Subject's Particulars	
Name:	NRIC No.:
Address:	
Sex: Female/Male	Date of birth: _____ dd/mm/yyyy
Race: Chinese/Malay/Indian/Others (please specify) _____	

Part I: to be completed by participant

I, _____(NRIC/Passport No._____)

(Name of patient)

agree / do not agree to participate in the research study as described and on the terms set out in the Patient Information Sheet. The nature of my participation in the proposed research study has been explained to me in

_____ by Dr/Mr/Ms _____

(Language/Dialect) (Name of healthcare worker)

I have fully discussed and understood the purpose and procedures of this study. I have been given the Participant Information Sheet and the opportunity to ask questions about this study and have received satisfactory answers and information.

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reasons and without my medical care being affected.

I also give permission for information in my medical records to be used for research. In any event of publication, I understand that this information will not bear my name or other identifiers and that due care will be taken to preserve the confidentiality of this information.

_____

[Signature/Thumbprint (Right/Left) of participant]

(Date of signing)

Part II: to be completed by parent/legal guardian, where applicable

I, _____ hereby give consent for the above participant to

(parent/legal guardian)

participate in the proposed research study. The nature, risks and benefits of the study have been explained clearly to me and I fully understand them.

_____

[Signature/Thumbprint (Right/Left) of parent/legal guardian]
(Date of signing)

Part III: to be completed by witness, where applicable

An impartial witness should be present during the entire informed consent discussion if a subject or the subject's legally acceptable representative is unable to read. After the written informed consent form and any written information to be provided to subjects is read and explained to the subject or the subject's legally acceptable representative, and after the subject or the subject's legally acceptable representative has orally consented to the subject's participation in the study and, if capable of doing so, has signed and personally dated the consent form, the witness should sign and personally date the consent form.

Witnessed by: _____

(Name of witness) (Designation of witness)

_____

(Signature of witness) (Date of signing)

Part IV: Investigator's Statement

I, the undersigned, certify to the best of my knowledge that the patient/patient's legally acceptable representative signing this informed consent form had the study fully explained and clearly understands the nature, risks and benefits of his/her ward's participation in the study.

_____ _____

Name of Investigator Signature Date

Appendix 4.5: Data Collection Form

NUS National University of Singapore

Research Title: Essence of lived perioperative experience of elderly patients undergoing joint replacement surgery in Singapore: A Phenomenological study

Data Collection Form

Tick (√) where appropriate.

1. Participant No. _____(xx)

2. Date of contact: _____(dd/mm/yy)

3. Address: _____

4. Contact No. _____

5. Date of birth: _____(dd/mm/yy)

6. Gender:
   - ☐ Male
   - ☐ Female

7. Nationality:
   - ☐ Singaporean
   - ☐ Permanent Resident

8. Marital status:
   - ☐ Single
   - ☐ Married
   - ☐ Divorced
   - ☐ Widowed

9. Race:
   - ☐ Chinese
   - ☐ Malay
   - ☐ Indian
   - ☐ Eurasian
   - ☐ Others (specify):_____

10. Educational level:
    - ☐ None
    - ☐ Primary level
    - ☐ Secondary/'O' level
    - ☐ Diploma
    - ☐ Degree
    - ☐ Postgraduate

11. Occupation:_____

12. Living condition:
    - ☐ Alone
    - ☐ Family member
    - ☐ Friend
    - ☐ Others (specify):_____

NUS National University of Singapore

Research Title: Essence of lived perioperative experience of elderly patients undergoing joint replacement surgery in Singapore: A Phenomenological study

13. Primary caregiver: ☐ None
☐ Family member (specify):_____
☐ Hired caregiver (maid)
☐ Others (specify):_____

14. Primary Diagnosis: _____

15. Any existing comorbidity: ☐ No
☐ Yes (specify):_____

16. Current medication (specify): _____

17. Current Surgery: ☐ Right total knee replacement
☐ Left total knee replacement
☐ Bilateral total knee replacement
☐ Total hip replacement

18. Name of surgeon (current surgery): _____

19. Any previous surgery: ☐ No
☐ Yes (specify date and surgery):_____

20. Date listed for surgery: ___/___/_____	21. Date of actual surgery: ___/___/_____
22. Date of Preadmission Testing: ___/___/_____ 22. Date of Discharge: ___/___/_____	21. Date of 1st Interview: ___/___/_____ Duration:_____ Venue: _____

23. Postoperative pain management: ☐ Oral analgesia
☐ Oral analgesia and Patient Controlled Analgesia
☐ Oral analgesia and others (specify):_____

24. Date of 1st outpatient appointment: _____/_____/_____	25. Date of 2nd Interview: ___/___/_____ Duration:_____ Venue: _____

26. Remarks: _____

Appendix 4.6: Research Grant

MINISTRY OF HEALTH
SINGAPORE

9 December 2011

Dr Sandra Jane Mackay
Assistant Professor
Alice Lee Centre for Nursing Studies
Yong Loo Lin School of Medicine
National University of Singapore

Dear Dr Mackay,

MOH Nursing Research Committee Grant FY2011 First Call

Project Title: Essence of lived perioperative experience of elderly patients undergoing joint replacement surgery in Singapore: A Phenomenological study

Period of Project: From 16 October 2011 to 15 October 2012

Project No. FY11-04

I confirm that I have received the Domain-Specific Review Board approval from the National Health Group, and your statement of undertaking for the above project. With these papers, the MOHNRC formally approves the award of research grant for this project. The details of grant awarded are as follows:

Manpower	$0.00
Consumables	$20.00
Hard & Software	$1,250.00
Miscellaneous	$2,400.00
Total	**$3,670.00**

Please note that the MOH Nursing Research Committee (MOHNRC) grant is operating on a reimbursement mode. You need to seek help from your employing institutes to create an account and make the reimbursement through such account. The two steps of making reimbursement are:

1. To verify the expenditures, the finance office of your institute may ask you for all the original supportive document (e.g. receipts, record of payment to research assistants, etc.). Please keep a copy of these papers and send the copy to the Secretariat of the MOHNRC for endorsement of the reimbursement.
2. The financial office of your institute will need to send an e-invoice to the Ministry of Health with the following information:
   - BU: "MOH04 – Professional Group"
   - Attention: Ms Dawn Liew (email: dawn_liew@moh.gov.sg, and Mr Mohamed Shaufi Bin Saudi (email: shaufi_saudi@moh.gov.sg)

Please make the final claim for reimbursement before 15 December 2012.

Ministry of Health, Singapore
College of Medicine Building
16 College Road
Singapore 169854
TEL (65) 6325 9220
FAX (65) 6224 1677
WEB www.moh.gov.sg

Please also note that you are required to submit to the Secretariat:

1. A Progress Report by April 2011 using the format in the attached form.

2. A bound copy and a softcopy of the Final Report within one month of completion of the project.

For any further information, please contact me and quote the Project No. shown above.
Thank you for participating in the MOHNRC grant exercise.

Yours sincerely,

Cheng Bing Shu (Mr)
Secretariat, MOH Nursing Research Committee
c/o Manpower Standard & Development Division, Ministry of Health

Office Tel. (65) 63252438, Office Fax (65) 63259211
Email: cheng_bing_shu@moh.gov.sg

Appendix 5.1: Transcript of First/Second Interview of Leng MC3-83 TKR

Leng MC3-83, Right TKR – First Interview on 26/3/2012 (fifth postoperative day)	
I:	Can you share your experience before this surgery, during the surgery when you brought into the operating theatre and also after your surgery having gone through the surgery?
P:	Before I decided to have this operation, I was really very concerned because I have Type 2 Diabetes. And in one of the checks, I have to undergo ECG. And they found there's abnormal heart beat but it turned out to be nothing serious. In fact, I went for nuclear heart imaging and they found nothing wrong with it. But I was rather apprehensive to go for an operation. So I suffered (knee pain) about 4 before I really make a decision. Actually, I went for consultation at sport medicine, the one at Novena. I thought I could rectify the fault in the knee by exercising but I was quite lazy and I didn't turn up.
I:	Was it 4 years ago?
P:	4 years till now. It (knee pain) was on and off, you know. I travelled quite a bit. Thailand, Japan and other countries. I found that at that time the pain come on slowly and unbearable. I have to sit down and spray Salonpas. I've been applying this trans-dermal cream TGF. I was told it was a slight pain-killer and apply it. It feels better but the pain (knee) comes on again. Recently, I took a trip to Tioman island because we have a little chalet there. And then I found I really couldn't make it. So I got a mobile wheelchair during the trip but I found it very inconvenient. My son wanted me to go for assessment but again I was reluctant. I agreed to try it out because he told me that it was due to wear and tear and the cartilage was gone.
I:	Your son is in Medical line?
P:	Yes. W. He is a radiologist, who deals with the head rather than the leg.
I:	Okay.
P:	(gave a chuckle). A few weeks ago, 3-4 weeks, when W came over, I said okay to surgery. He told me that he had a friend who is really good at this sort of surgery. Let him give me an assessment and opinion. I actually wanted an opinion, you see. Then I arranged the appointment at SGH which was very fast. Then one morning, I went for a consultation and took an x-ray. The doctor had a look at it and said well, " if you want a better quality of life, to be able to walk, then it is better to have a replacement. He was quite honest about it. Before that, I went for a lecture on knee pain at Gleneagles Hospital. And they said that they may be able to get the fittings from Belgium.
I:	Fittings?
P:	The steel or titanium, I think. They will fit quite properly and is quite painless thing. It won't take long to fit. But Dr Y said that he think it is better at SGH as they have all the equipment and fittings here. I told him my utmost fear and I gave him my health report and my annual check-up on my diabetes report. Dr Y said no problem but the only thing was that my sugar may go up a bit. And he gave me some tablets which he said would bring it (the sugar) down. The tablets were not

	very cheap (gave a chuckle). I told him that my utmost fear is pain (raised his tone of voice), I have very low threshold of pain. He said, "Not to worry as we have good pain management. You will under sedation. It is up to you whether you want full anaesthetic or half epidural. If epidural, your recovery will be faster. You won't feel any pain, you may hear something and there is a screen in front of you, that's it. But of course there are the cons, you know like it will affect the nerves, the injections go in, may have deep vein thrombosis, there's blood clot and you may get heart attack. Of course you take a chance when you go in for it." So I thought I'd go operation to replace my knee. I've a few friends who said it (surgery) was very good. Some said 'wow' very painful. So, it is very hard to differentiate. So I say okay, never mind, I threw the dice. I worked it out. At my age of 83- 84, Chinese (zodiac) 84 (years old), how long more to go to 90? If God bless me, I'd be 100. By 98, I'd be "cuckoo" already, you see. So I said, "Take the chance, at least to enjoy my last few years of my life, to be able to enjoy and travel a bit, you see". Otherwise, it is really painful. So I decided there and then. And Dr Y was kind enough to give me another appointment. I went to see him, I think 2 weeks, he gives me an appointment 2 weeks after my first interview with him. I had it done on 21st. I think this was special arrangement.
I:	Yes. That's quite fast.
P:	He said I have a slot in the morning if you come early. I agreed. I preferred to have mine in the early morning. I cannot stand hunger because I will go 'Lembik' (Malay word for exhausted. So I went through the usual checks on 20th, 1 day before the operation. I met M and she told me about this study and asked me to sign all the forms.
I:	That was your preadmission testing day, to get all blood checked, right?
P:	Before that, I had to go for another assessment, I have to check everything, then I go for the preadmission. That was faster. That's right.
I:	That's where you saw Sister M
P:	No. Sister Maria is in the first one (first check).
I:	The first one.
P:	First interview, I think, was the same day or few days later. I can't remember. I've got to check. Then I went on to preadmission which was quite quick. Just went through what they've done again. They took measurement and all that. Prof Y mentioned that he has done a thousand plus surgeries per year. I heard from a friend, Prof W who underwent knee operation at Tan Tock Seng. She said the surgeon had done a few hundred of patients. She felt fine but she did not tell me that you feel fine only after a few days rest but then the actual recovery takes about 6 - 12 weeks.
I:	Okay. 6-12 weeks.
P:	Anyway, I went for the operation. Not so <pause> fearful. Went in there and the anesthetist went to the 'Rig morrow' (expression meaning the rigour of explanation) again, explaining the whole thing. I said never mind. If it's God's will, you know. If have to go, I go, you know.
I:	Did you get yourself admitted or did you go for operation on same day and then you go up to the operating theatre?

P:	No. My son accompanied me.
I:	But you didn't stay in the hospital for one day before going for the operation?
P:	No.
I:	You went straight
P:	I went there in the morning and they did all the checks, I think do all the blood tests and the special test and I went in to change straight away to go up the operating theatre
I:	Same day?
P:	I was going in and out...quite a maze (being wheeled into the operating theatre. When I reached the operating theatre, Dr Y had just finished his other patient. I went in there. The anesthetist gave the whole story again. I decided on epidural. Epidural is half. I didn't even feel anything. He gave me the sedation (local anaesthesia), I didn't even feel the needle going in. I said that I preferred to close my eyes and sleep but not the full one, you know. Because I had a full one before. And he explained that if you have full anesthetic, they have to put a hose inside the throat and it can become sore and the recovery is slower. So I take this one.
I:	So, you had previous surgery before?
P:	Yes. 60 years ago. Hemorrhoids.
I:	Were you are under general anaesthesia?
P:	At that time, they gave me general anaesthesia. Professor Y, you know?
I:	Oh. He's very senior.
P:	That was long time ago. That was before I got married. They said better go for health check. And then they found out, I have bleeding piles.
I:	Okay.
P:	So anyway I went in there and..
I:	That was a good anaesthesia?
P:	Yes. It was good. Before they could say 'check' (expression meaning moving on to next stage), I was out and awake in the waiting room, I meant in the post operative area but I have to wait 3 hours before I could get a bed. I think more than 3 hours.
I:	Waiting for bed.
P:	Yes. So I shifted from ward 76 to 75. My children and my wife said to get a 'A' class ward, feel more comfortable, TV and they want to come and see you anytime. So, I managed. Well, I have always spent, I have no (health) insurance, so I always spent for the medical consequences. But I can make it, so to speak. The doctor said was only it takes 3 days I was quite skeptical. 3 days you can walk (chuckle) but it was 3-5 days stay. Initially they told me 5-7 days. I said no, I won't stay on the Sunday. If you want to check me out, check me out on Saturday. That was only 3, so either 3 or 4. The doctor came to see me I meant Prof came to see me the next morning. On the following morning, I could walk on the 2nd day.
I:	On your own? With the walking frame?
P:	Yes. With the square one. Then they take me somewhere with the frame. Oh ya! On the 2nd day, I think they asked me to go to physio. Asked me to walk up the steps and walk up and down. I could do it, you see.

I:	Day 2
P:	There was no pain. Day 2.
I:	That's very good.
P:	And then day 2, sorry day 3. When they checked me out, it was day 4. Day 4, I have to do it all over again. Sorry, it is day 3, Day 2, I was walking up and down in the room. Because of the toilet, I have to use, I preferred that even at home I find it sometimes a bit scary, you know.
I:	Now I see that you already walking using your walking stick, you are not using your walking frame.
P:	No.
I:	So when you came back, did you using your walking frame?
P:	No, I don't use.
I:	Did they discharge you with the walking frame?
P:	No.
P:	I was alright. I meant the physio saw me walking up and down. I was quite stable, I meant I was not giddy, not shaky, anything else.
I:	A good recovery.
P:	I was quite surprised myself. Then I have this pain because I didn't take Panadol in first few days. This morning I stopped the heavy pain-killer, the smaller one, the yellow and green one.
I:	What's that? Is it Arcoxia or Tramadol?
P:	I'm not sure. Is Arcoxia I think. Then after that, just now I felt a little bit of pain creeping in on the bone side, so I quickly took 2 Panadol. And I didn't feel anything. I could pull but not up to the 90^0 yet. And the exercises no problem, walking here no problem, want to go up the stairs, my wife said no. She didn't allow me. She said take it easy. Because she has a friend, a doctor's wife in fact had the infection. The doctor said infection is 1%. So just keep things clean, then you'll be alright. The doctor's wife went for 2nd op.
I:	Take out? Change?
P:	I do not know what they do, I did not follow-up, you know. In Johore Bahru.
I:	Okay.
P:	So at the moment the usual thing, the cold compress. I told them, don't spare the dollars, do supply me what is necessary. So they give me this stockings then I bought this thing and the tablets (medication).
I:	These are Ted stockings.
P:	But I put an extra stocking because I dare not dirty the sole. But I'm careful when I walk.
I:	Ted stockings is only on one side? Is it on both sides? Both sides up to here (pointing to groin area)
P:	Both sides. I find it quite tight. Even though they measured it, it was quite tight.
I:	Can I just go back? Let me just ask you some questions. Okay. Going back to before operation itself. You mentioned about walking during Tioman trip that you realized that you couldn't really walk, so used the wheelchair. But during the period

	when you realized that you have knee pain and also osteoarthritis of right knee itself, did you restrict a fair bit of activity that you are actually doing? Activities that you usually do, did they reduce in anyway?
P:	Yes. I meant I couldn't go walking the malls, I like to watch the mall, shopping. In fact some of my friends said that the only way to improve walking, you walk the malls. But I find that I couldn't go very far. 50 m at the most and then I've got to sit down.
I:	I understand from you, you did fair bit of travelling?
P:	Yes. I like to travel.
I:	I can see you travelled widely. Does your travelling also reduced with your condition?
P:	At the moment yes. You see. I used to go but I like cruises, you see. Because cruises but then I don't go down to join the land tour. I stayed on board of the boat. Even on board of the boat is easy. I could hop from one hall to another hall, you know.
I:	What about in term of your body image? How do you see yourself being perceived by others with your body image, in term of your knee, the way you walk?
P:	Well, I would said, to the knee pain, I walked like "Popeye" , you know. It was beginning to bend you see and it was quite noticeable. And I thought that if I don't get it done, then the weight of my leg pressure will be on the other knee. The other knee may go. And also if I don't exercise, I was beginning to gain weight a bit. And not that fit, you know. And these few days I can stand, you know. I used to do free hand up and down, free hand exercises, knees bending and all that. Quite okay. I used to play golf. I stopped playing golf many years ago.
I:	Since you have this problem?
P:	Since I have my diabetes. At least 8 years ago.
I:	8 years ago. When did you start having your knee osteoarthritis?
P:	After I start (having knee pain), I didn't play anymore. I didn't wait to become worse
I:	So you stopped golf earlier.
P:	Earlier. Because you know, sometimes can't finish 9 holes, somehow or rather you get hungry. I think it was lack of sugar, hypoglycemia, something like that.
I:	But are you on medications for your diabetes?
P:	At that time, partly on. You see that's the trouble. I tried to be too smart. And I self-medicate. Get the tablets and all that. And the doctor who treated me was not a real diabetic doctor, just a GP. Didn't go into more details. Just you take this tablets and the blood sugar that time was not really that high. Then begin to drop down. One day, I went to one of these diabetic road show, you see. Then went there, the thing went up so high. The nurse said you better come to see the doctor tomorrow otherwise you will be in trouble. So I tried to arrange for appointment. She (nurse) said no. You must go in as a private patient. I said okay. So then I get the doctor, no A/Prof L. He was n KKH. So have to see him in KKH. He was formerly from Alexandra. Alexandra, I can drive. Driving is not a problem for me. Then I could

	walk a short distance to his clinic. But going to Khoo Teck Phuat, I have to go by MRT. So, it is quite a job. Quite a walk for me. And then I also found out that they said diabetes have the effect on the kidneys. Nothing yet. At the moment, it is still okay. The filtration rate is 35 or something. And I've got a little dot. In fact in July I will be going for an ultrasound because they found a little dot on the top. The last time I have a little dot.
I:	On here. (pointing to the right kidney).
P:	On the kidneys. But the doctor said that there was no problem.
I:	Are you concerned on how others perceive the way you walk?
P:	They always give way to me. A bit inconvenient at some club or society. It is necessary for me to stand and sit down when I 'toast' during gathering. Previously, they don't even give up the seat to me. Now, the new generation has changed. At least they give in to you. Sometimes you can sit down. When I am on the MRT heading for Khoo Teck Phuat, it is quite a long way you know, 40 minutes. They gave me a seat but some don't. My wife is 82 and she travelled to all the churches. She found that people are more aware and accommodating now.
P:	Before operation, I bought wheelchairs, a big one and small one to facilitate my travels. My children discouraged me and asked to go for surgery instead so that I can be mobile. It was really a difficult decision on the surgery. There one there (pointing to the one of the wheelchairs).
I:	Okay. Bought it in readiness.
P:	But I don't need it. I find it quite simple to move around and do gardening. Oh ya! I can't do gardening. I can't stand up as everything that you need to do require standing up. Basically, I am an introvert. So I don't mind not going out. But during family gathering, my wife wants to go out, my children want to go out, the grandchildren want to go out.
I:	How was your pain before the operation and how do you manage it?
P:	As mentioned, I started applying TGF cream and when it got a bit worse, I tried all sort of sprays. I found that the Chinese spray is not bad.
I:	Where did you get that from?
P:	When I was in China, I told them I have this pain. It has some deer mixture in it. I have only one bottle, so I used it very sparingly.
I:	Is it effective?
P:	Yes, quite effective.
I:	How does it work?
P:	It cools down. It has menthol, I think. So it cools down a bit. I used Salonpas occasionally, I know that was for stronger pain. Then I found TGF as it says for pain and itch.
I:	Pain and itch?
P:	How is it connected?
I:	I think they are different. It is more pain than itch for you.
P:	Yes. Pain. So I rubbed that on and it has some effect. That set me thinking that is actually a slight pain-killer, so it doesn't give permanent relief.

I:	Other than applying cream, do you take analgesia or pain-killer?
P:	Glucosamine chondroitin 1500mg. The pain is not that bad. If I lie down, I'm okay.
I:	How do you find the support from the family?
P:	Very good. My wife is very supportive. My son and daughter-in-law are also supportive. I moved from upstairs to downstairs. Exchange rooms with my son and wife. My wife won't allow me to do a lot of things.
I:	Who is your main care-giver?
P:	My wife. <Laughing> Actually, nothing much. I meant that I'm not demanding. I don't want her to... she is not young. Now she has gone out with my eldest daughter. My eldest daughter works in Bali. She is back here to do some work.
I:	Were you aware of the surroundings and what was going on during the operation?
P:	I heard some knocking sounds, I think they must be hammering the 'thing'. It must that I was slightly sedated. I didn't open my eyes. I can't see. Sometimes, I open for a short while. Don't dare to open to see. The TV screen is quite high and there was a big light there. The operation was over rather fast. The anaesthesia was quite effective. I have something here (showing the bruise over his right thigh).
I:	It was probably due to the tourniquet to stop the bleeding during the operation. Like a rubber band holding on to you. It will eventually go off.
P:	<Laughing> Scary. In fact, I didn't notice until a few days after the operation. Why is it so black?
I:	How do you find the staff throughout your surgical experience?
P:	I must say that they have been very accommodating, very helpful. They don't want to see me fall down. Even if I wanted to go to the toilet, they'd assist me.
I:	How do you find the nurses, doctors?
P:	Doctors, about one or two always very cheerful. Dr P was a nice young man. The preop thing, going from one place to another, took a bit more time. I finished the interview in one area at 12 pm, have to wait till 2 for another interview and it's gone (over soon). Quite a waste of time. It took quite some time.
P:	2 hours. I meant lunch time you see, so it happened you know.
I:	Okay. How do you find the nurses, even the allied health staff?
P:	All the other staff are very kind, very kind. I don't know whether is it because is a "A" class or something like that. But they were all very kind, I think they knew their job. Of course there were 1 or 2 new ones you can see you see. 1 or 2 new nurses there but more senior nurses, staff nurse.
I:	Did the nurses still follow-up on you after your discharge?
P:	One called me because she thought that I left my cold pack behind. But this is my cold pack, they put into the fridge. They called me and asked me if I left my cold pack. Yes, I said, I have it. This was the last nurse. I think she is a staff nurse.
P:	At the moment <ya>, I'm very happy. In fact, I'm quite surprised that I have such a full recovery. I meant there was no pain at all. Not even a pinch. I felt slightly when I hit it here just now (Mr L pressed hard on side of right knee earlier).
I:	You hit it?
P:	No. I just pressed it hard. Not at the stitches but on side of right knee.

I:	This side? On your right lateral side. Is it numb?
P:	No. Very little. Doctor said will be numb on this side. I can't feel a thing there. Nothing. No numbness. Feel hollow and 'suck in' on lower part of right knee. I think I have placed this ice pack for more than 20 minutes…30 minutes now. Doctor said that after 5 days, I can remove the dressing and there is no need to dress again. The stitches are underneath. I took the dressing after 4 days and clean it up. My son who stays with me is a army medic, Sergeant. He dressed the wound with saline water put the plaster. When I bathe, I put a plastic cover on my dressing.
P:	I had physiotherapy on 2nd and 3rd day. (Adjusted his 'sarong' to disclose the patch of bruise on right thigh. He looked concerned with the colour of skin on his right thigh)
I:	Bruises, there is some bleeding under the skin at the time they handled the knee but all these will go off slowly.
P:	It was not there yesterday. I think I fell down. Maybe I knocked the bed side.
I:	Did you?
P:	I don't think so. Not that I can remember.
I:	It's okay. You can just massage gently, it will heal slowly.
P:	It will heal. It will resolve (reassuring Mr L)
I:	You mentioned that you have physio on 3rd and 4th day, right?
P:	I think 3rd and 4th. Not 2nd. On the 2nd, I could walk. In fact, when I went back to my room on 21st , Wednesday, it was quite late already. Thursday is the 2nd day after operation, I could walk, I could go to the toilet, you know (affirming his mobility). They (staff) said not to go, don't go, you know. But I found that I was quite steady, no giddiness. But I asked for the bottle (urinal). Actually, I tried not to get up to walk to the bathroom. On Thursday and Friday, the day before I checked out, I went out for exercise at the rehabilitation. Actually, there is nothing much there. I had to walk up and down with foot wear using 4 prongs stick and a single stick, that's all. I stepped up and down 4 or 5 steps. But my wife won't allow me to go up the 4 steps here. I don't know why.
I:	She's quite cautious.
P:	My wife is cautious. I think it should be alright, you know (disappointed that he was not allowed to do it). I always use the left leg.
I:	Left leg is the stronger one. Okay. How was your left leg before the operation? Does your condition of right affect your left leg in anyway? Do you find that there is pain on your left because you used more of the left leg?
P:	No. I didn't want to put pressure on it (right leg). Actually, I could turn and step on using the right leg to get to the next step. Once I get bend it, I can go up already to move left then right, left then right. It is only difficult for the first step. Once the first step is taken, I can go on already. I go to the church at Holland village. The steps are quite high. Going down the stairs is more difficult than going up.
I:	How do you find the physiotherapy and physiotherapists who worked with you?
P:	Well, I must say she (physiotherapist) is quite experienced, She's got quite a few

	cases to handle. Basically, it is the same exercises like what I'm doing at home now. The four the knee bends, pulling 90^0, depression and raising. Do RICE- Rest, ice, compression and elevation.
I:	Certainly right at your fingertips!
P:	Have to. I maintain my sanity <laughing>. I read books.
P:	Before I go for physiotherapy, I scrubbed myself clean with Dettol. I see the way they (physiotherapists) handled the other patients. They were very careful and kind especially to the older ladies. In fact, some were about 10 years old younger than me. There was a male patient. We were asking each other on our age. I said I'm a Dragon (Chinese Zodiac) boy and he said that he was also a Dragon. I guessed that he would be 84 years old but he told me that he was only 72. But he looks older than me <laughing>
I:	Who's your caregiver when you are back home?
P:	My wife is the main caregiver. The maids can't do anything. Both maids are pretty new.
I:	Do you seek for alternative therapies for your knee condition?
P:	Only on one occasion, a lady friend strongly recommended me to consult the Chinese Sinseh, a bone-setter. My daughter insisted. I went once and was told it was beyond repair, 'Buay Sai Liao' (chuckling away).
I:	As a Chinese, do you find that your surgical experience different from a Malay and others?
P:	I am English educated. I was brought up in a English and dialect, I am more Anglo File, so I believed more Western medicines. When I was young, I always take Chinese herbs and all that. In the old days, I eat Chinese medicines, cockroaches and lizards and tiger meat. Cockroaches was remedy for fever, sore-throat. Tiger meat for malaria. We have to get tiger meat from Malaysia. Iguana for cooling and so on.
I:	Does your religion influence you in your perioperative experience?
P:	I was born Christian, but I've been off the church for a long time. But I believe in society, we should believe in God. At age 80, I told myself to go back to the church. I went back to the Methodist church. My daughter is a very staunch Christian. I wondered if my condition can be healed. I tried but since my faith is not strong, I was not healed. I seek God to give me less pain and getting to know the right people to do the right job. This is also God's blessing. As I am older now, I feel that God is going away. Like a dream. At night when I sleep, I may not get up. So, I need to have more faith for self-assurance.
I:	Do you think your faith helped you to handle things better?
P:	I supposed so. It's when I am in trouble, I seek God. I am a Free Mason, one of the biggest supporters of churches and hospitals. It is a society at Bowman street behind the fire brigade.
I:	How do you find yourself coping with bathing and other daily activities before the operation?
P:	We have a low bath tub but I prefer the one upstairs. My room has a low bath tub

	and there is a little corner that I could sit down. I am independent before the operation. After the operation, I bathe myself at the hospital. When I am home, my wife doesn't allow me to bathe myself. I sit on a chair at the bathroom. My wife scrubbed my back since I can't reach. I am lucky <laughing>. I think it is very important that the other half (spouse) understands you. We have been married 58 years. I am aiming for 60 years anniversary and 90th birthday. I am very lucky. God has truly blessed me in such circumstances. I encouraged my wife's lady friend, a very good friend to go for the knee operation. She is big in size and has been suffering in pain for 6-8 months. The 'karang guni' man told me not to go for the operation and it will be "Tia Si'. He showed me his operated knee <chuckle>. He has a cut at his knee. He told me 'Mai Key Gua' 'Tia Si' (Hokkien dialect translated to 'do not operate, it'll be too painful') <laughing>. I am glad that I went for operation. In fact, I told him, 'You bullshit'. <laughing>
I:	Different individual, have different experiences.
P:	Maybe he did not really care, neglect the exercises, may be not enough pain killers. I stopped taking the heavy one (Arcoxia) this morning only. I had just finished 5 tablets. This morning, I took 2 Panadol just before lunch. I take 1 tablet (Acorxia) and 2 Panadol consistently. When the pain appears, I take 2 Panadol as I do not want to experience pain.
P:	Yes, thank god. In fact I thank all the nursing staff and the doctors here. Medical science is fantastic.
Leng MC3-83, Right TKR – First Interview on 26/3/2012 (fifth postoperative day)	
I:	Mr Lim, for this 2nd interview, can you describe your experience after the operation i.e from the time that you last shared your experience till now.
P:	Okay. I think the operation was very successful, and the doctor was very professional in terms of the surgery. It was not what I expected. I have seen people who had gone through this operation and they have like a shoe-laced type of stitching exposed. Whilst mine is concealed. I believed it has been done underneath the skin.
I:	It is subcuticular stitch.
P:	I was pleasantly surprised and congratulated the Prof Y for the skill. During the surgery, I was assured that everything would turn out fine when I went into the operating theatre. The only problem was that there was no vacant room and I had to wait for nearly 3 hours at the recovery area. I brought me to Ward 75, bed 6. The nurses were helpful and caring. I do not feel the pain until 2 or 3 days later. I was on oral pain-killers from Day 3 after operation. I did not use the pump at all. Arcoxia was for heavy pain and the other for lighter pain was Paracetamol. I only have 20 tablets (Arcoxia) and I still have 3 of them.
P:	I was just resting in bed. I did not go to the loo because I didn't want to put pressure on it, and I was using the urinal. I was given a walking frame. I stayed in the room most of the time and I was quite happy there. I had constipation too. When the pharmacist came to give me the medication on my discharge, I told him

	of my constipation. I used the liquid medication and it cleared eventually when I came home. I use the fleet enema on my own when I am home when I have constipation. I used the Taiwanese one. At the hospital, I managed to walk the stairs on the 2nd day after operation. I went to the physio room. On the 3rd day, I did not use the walking frame. I just used my walking stick. I've been given a new leg, practically. When I have to go for the 1st physio, I was given a list of exercises which I have to do. I still kept my dressing (on operative site)
P:	On Saturday morning, Dr G asked if I wanted to go home. I said "Yes. I think I'm okay to go home". I'm very happy even that with this thing (walking stick). When I walk, there was a different kind of pain, slight pain. It was blue at my thigh.
I:	It looks cleared now (looking at the thigh as Mr L wore short pants during the interview).
P:	It's okay. Of course, I have been doing the massage. My tendons can be a bit stiff, cannot stretch due to age problem, maybe. And I have been recommended to use hot compress. In my physio, I exercise but dare not stretch too much. So, there was not much of progress. I have to see the physio again on the 4th day. They didn't give me enough time to complete the exercise. The time was a bit short
I:	Why do you say that it is a bit short?
P:	Because it's only 4 days after operation (patient discharged and went for physio from home) and I still have my bandage, I couldn't really fully complete all the exercises. Because I am supposed to press down on my knee, press down to straighten it. I can't do so even now. The pain is here (pointing to back of right knee). I dare not press on it. When I saw the Prof Y, he said that that I can press on it at the sides and can even massage on it. I took out the bandage out only on the 15th day. I remembered it was Easter Sunday. I told myself that for Easter Sunday, I'm going to have a look again.
P:	That I can remember you see. I took off my bandage and went on for my 2nd time. This time was another physiotherapist and I told her why you know, the 4 days doesn't give me enough time to really exercise because I dare not press on my wound.
I:	Did you still have your bandage on your knee on the 2nd physio visit? You mentioned that you took it out on Easter Sunday
P:	If it is not Easter Sunday yet, that meant I still had my bandage on. On the 2nd visit, the physiotherapist gave me another pamphlet telling me to do some exercises.
P:	I told her that I'll be seeing the surgeon on the 17th April. She told me to see her before seeing the surgeon. She gave me a report to pass it to the surgeon. I had another appointment with her after I have seen the surgeon. I saw the physio again after seeing the surgeon. That was yesterday. This time, of course the measurement was much better.
I:	What do you mean by that?
P:	I meant I could bend up to 100 degrees, 100 plus. Before the 17th April, it was about 87-90 degrees. I was working on my level one exercise. She asked me to more exercises and use hot compress to loosen my thigh muscles and tendons.

I:	Did it help?
P:	Well, I haven't really tried it for long yet. I only did it once or twice and I supposed it helped a bit. Otherwise, I couldn't bend so much. The cold compress should be placed after the warm compress.
I:	How was your experience with the physiotherapist?
P:	The 2nd physiotherapist was better.
I:	Is it the same person?
P:	No, not the same from the first one. I was told that I can ask for the same therapist. She also said "you can ask for me, so that I can follow you through". So the doctor showed me the thing (letter) that the physiotherapist recommended 4 more sessions for which I already done one. The next one would be in 2 weeks' time. Once every 2 weeks. I asked for 3 weeks but he said, "better come in 2 weeks". It was one day before Vesak Day (on 4th May)
I:	So you remembered them by Easter Day and Vesak Day.
P:	That's easier to remember.
I:	Correct. These are the important dates.
P:	Nowadays, my memory is not so clear. I had quite a good memory retention when I was younger. But now at this age, difficult. Okay, I've got to go slow.
I:	How do you find the physiotherapists?
P:	They (physiotherapists) are a great help, very accommodating and encouraging.
I:	That's good. So you have a good experience with the physiotherapists.
P:	I wanted to get the massage cream which they applied on me during the physiotherapy for but I was told that the cream was only available for hospital use. I can't buy it.
I:	Probably, a control item.
P:	I saw the label as Braun, a body lotion, body cream. I went to the dispensary, They applied it some on me and it made me feel better straight away. I couldn't find it at the shop. The item should be made available to patients when they undergo physiotherapy. You can give to them or let them buy a smaller bottle. After all, you paid 70 odd dollars per session. You can't buy the massage cream because they don't sell it. That lotion alleviated the pain. It seems to have some analgesic or muscle relaxant effect. We will use different lotions/cream to massage. That's my recommendation. I just use the Nivea lotion from Japan to massage. Now, it has no fragrance. Somehow, the fragrance went off. When I was in Japan, I was looking for all these embrocation. The physiotherapist told me that this is for hospital use. It was a big bottle.
P:	I find the lotion helped even without the hot water application (compress). I did not ask for any of the hot stuff (compress) application in the hospital. At my last physiotherapy session, I left walking without my walking stick. I just walked there. My pace <chuckle>. The physiotherapist said to me, "Walk straight, Mr Lim. You are walking "Bengkok. " I was walking on one side like before. Leaning on one side. Right side (operated leg).
P:	She said, "Walk straight, walk slowly". I said I was walking like 'Popeye'. So, I

	tried to walk slower, walking like a gentleman. Anyway, I managed to walk and I walked from the physio to the pharmacy and check where I could get a taxi. If you take a taxi to a certain places, they don't take you for the right route. I find that the taxi fare to home from here is between $8-$10. If I can get a good taxi, they only charged me about $8.50. If I get a naughty one, I get charged $10. Rarely nearly $10.
I:	So you travelled by cab?
P:	Back to home.
I:	Who followed you? Anybody accompanied you?
P:	Nobody.
I:	You went on your own?
P:	Yes.
I:	Entirely independent.
P:	Independent. My son took me on the 2nd visit. Before that, my daughter used to take me there. On the 20th, my son came back from his travel. He dropped me to staff car park near the clinic, I just turned and walked from there. Just went there to flip my newspaper and waited for physio. The experiences with the physiotherapy were very good. There was a series of exercises which I need to do on a stiff base. I do not have a stiff bed at home. So, I was doing it on my bed which was too soft. The effect was not that great, so I went onto the floor. Once I get on the floor, I found difficulty getting up <laughing>
P:	Anyway, I'm going to try to do it on a hard chair, hard bench. Will see how it goes. Haven't take effect. Of course now, I'm trying to build up my muscles. I can walk up the stairs, no problem on both legs. Left and right, left and right.
P:	I can't drive yet.
P:	My wife can drive me to the club but then I feel I should drive first before I go (to the club). I'll try to swim but I'm not a good swimmer. I'll just go and just tread (water).
P:	We have a fitness centre as we are members of both clubs. I intend to go to the Island (country club) because it is not so crowded and not so open. It is better and easier to get down. And they also have jacuzzi in the pool, so we can also get in on the back. I can stand up and let it blow at me.
I:	Do be careful because it kind of wet.
P:	Ya,, I was told not to fall, I don't want to fall. I don't want the wound to open up again. I'm very careful. Can you tell me whether they have any screw inside to hold the thing?
I:	Yes, it has to hold things in place.
P:	So there is small screw?
I:	There would be.
P:	I only heard knocking sound (during surgery).
P:	I was wondering if my walking before time will loosen the screw.
I:	I think so long you go gradual, it should be okay. So far you're doing very well within what you can do. Even if you are not swimming, you can put your leg out

	straight to tone up your muscles at home.
P:	Because I've not been exercising, hell of a lazy fellow. And I thought it is a waste of time. Sometimes you see this is normal. I get a lot of calls.
I:	You are a busy person.
P:	Well, I mean they call me here and there.
I:	Is it a social call or working business?
P:	No, social calls. I don't like the blinking lights.
I:	You mentioned the other time that you're already retired
P:	I am retired but I do a bit of investment. Otherwise, I can't afford the bill <Laughing>. I look after my investment. I do it for all my children also. I watch their mails and this thing (investment). My daughter is there (overseas) but her mails come over. My son doesn't read his mails, just dump his things. So, I usually open their mails.
I:	You manage their investment.
P:	Not personal letter. It's all the bills. My wife doesn't care, she just leave everything to me. She trusts me completely.
I:	You are the one with the brain. I have retired 30 years ago, from 1981, it'll be 32 years by June.
P:	That was my hobby, investment. Otherwise, I can't afford the payment. We have no retirement plan. Last time, we only get 3% from the Provident fund. I have to work to survive. I do not have pension. I was with Singapore Airlines, a statutory board. We don't get any medical. Now, I am admitted as a private patient due to means testing. They find that you stay in Leedon Park, not considering that you bought the place 40 years ago, and is almost triple the price now.
I:	How much did you pay for this place?
P:	$100 to $200 thousand at that time. Now, it is 20 million. My neighbour said that because they pay high rental and I get penalized for having to pay the property tax on it. So, if you don't have any saving or investment, you can't afford to stay. In fact, many of my work mates asked why don't you sell my house and stay in HDB flat. I will get a better treatment.
I:	Well, but your house is like a resort here, no HDB can replace.
P:	Because you paid low price for it, that's why I can stay here.
I:	It's a good location.
P:	Never rented out. That time was 'Ulu' (Malay word translated as remote). Here was a jungle, behind was the fruits plantation. And you can get cheap banana and papaya from them. Anyway, the x-ray was good but now, I'm a bit concerned. I meant that I don't want to get a fall. I start to use back my stick again just to play safe and especially when it is raining. I only wish I can drive again. At first, I thought the brake was on the left leg. Actually, it is still on the right leg for automatic car.
I:	Are you using most of your right leg?
P:	Most of my right leg and not on the left. Left is nothing. I told the surgeon. He didn't know. He corrected me. I said I like to drive,

I:	Have you tried like you try to press on it? Is there any pain?
P:	No pain. Actually, the surgeon said after one month I can drive. It is already one month.
I:	So you can try.
P:	I can try. Anyway, I tried walking up the steps. I have 14 steps to go up. I've walked up and down. My wife told me to walk up the steps in the morning and come down until the evening where I walked up the steps again. But I use my son's room downstairs because it's easier to get into the bathroom. It is flat. If up there, I've got to hop into the bathtub. Coming down, I walk sideways, with right leg down first.
P:	I think it shouldn't be problem to drive an automatic car. At the club, I get a special blue label parking. Anyone over 80 years old, you get a blue label (privilege).
I:	Can you tell me about the nurses? I mean after you've been discharged till now.
P:	During the operation of course, I don't see anybody other than the nurse who pushed me who's a Filipino. She came back every half an hour to see me and told me, 'your bed is not ready'. I said never mind, 'don't worry, just leave me here'. I'm not feeling any pain, I'm not uncomfortable, I'm on the stretcher still, the mobile stretcher. So I told her not to worry and carry on with her job. The other patients may need you more.
I:	That was slightly after the operation.
P:	Post-operative. When the bed was available, I went over to my room, to the bed which was comfortable. All the nurses were very helpful, may be first class <laughing>.
I:	Okay. Any nurses follow-up with you by phone?
P:	Yes, one.
I:	After your discharge?
P:	One of them called me to arrange appointment with the surgeon. That's all.
I:	Was the person who called you a nurse?
P:	Yes, she was my nurse, I think a Chinese staff nurse who looked after me on my last day in the hospital. She's been there a few years. Before that, there were more senior staff nurses who cared for me. A few Chinese nurses. I'm not especially a demanding person. I know how it is like to be working. Unless if I'm in great pain. I am quite comfy. I sat on a wheelchair at the point of discharge and they sent me down to entrance at Blk 7. My son picked me up. I could get into the car myself. I was given 1 month medical leave <laughing> I think they expected me to go back after one month <laughing>
P:	No. But it was only yesterday, one month. So I don't have to ... I mean full one month if I were to follow the surgeon's advice
I:	Yes is one month. Usually is one month.
P:	Last Sunday, 1 week ago, I went to Vivo city (shopping centre). I was on the steering wheelchair.
I:	You were moving on your own?

P:	No, with my son. We went to book a passage. I was very interested in the 'Voyager on the sea'. We are going on a weekend trip.
I:	Okay. On the ship?
P:	On the ship. I still go to the loo. Now, I need to work on my diabetes and bladder control if I can work on it, I do not know, may be later. Sometimes, it is okay, I can hold it for 2-3 hours when I attend all those talks. When I am at home, I would need to go now and then. I don't know. I need to ask people how best to handle it.
I:	Have you seen the urologist?
P:	No. I'm seeing my diabetes doctor not an urologist or kidney specialist.
P:	I'm going for the ultrasound on my kidneys in July.
I:	Is there anything wrong?
P:	There's a little dot on top of my kidney. The last time I went, the dot was already there, but then the doctor said no problem. My kidney function is fine, 36 or something like that, no change from the last time. That was about 6 months. I'm controlling by drinking more water. I used to dehydrate myself. I didn't drink very much water. I'm drinking more water now, passing more urine which is clearer. I think at night I get about 3/4 liters.
I:	That's a lot.
P:	It is normal for me. I drink a bit more water when I take my tablets. But now, I take more water, 140-150mls of water.
P:	I'm not very confident yet travelling by bus. In fact, I prefer to travel by bus. On crossing Outram road, I've got to cross the road or go up to the bridge since there's no underground road. I dare not cross the road unless there's a traffic light. I dare not. I didn't see the traffic light.
I:	There is a traffic light crossing to Outram road.
P:	I can take the shuttle bus
I:	Yes.
P:	I've not tried that yet but if I have to go by bus. Most probably another 2 more times of physiotherapy. That's about all.
I:	How's your family support?
P:	They all very happy. In fact, my daughter from Bali, she was the one most instrumental in my surgery.
I:	Okay.
P:	She (daughter) said that one is your faith. After doing one leg, I may want to do another leg. Then, I can go dancing. I do not know. My wife said, "the first thing to do when you can walk is to take me dancing". Dancing exercises <Laughing>
I:	That's great. So, both of you dance together?
P:	Not really that well. We used to go to the PA (People's Association). They have dancing class. No more now. I only do the normal one. With the leg problem at that time, I'm not too fond of doing it.
I:	How's your left knee?
P:	The other knee is fine. I have to start working on it as you can see this leg (left) is

	bigger than the other leg (right). You see that the muscles are stronger because I think I have been using this leg (left) more often.
I:	You have to try exercise this leg (right).
P:	I can feel the pain here. The tendon, you see the tendon underneath here? I've been massaging <chuckle> Actually my brother-in-law told me to use warm compress, but I did not do it because I thought it was not necessary. I only use the cold compress to take the swelling away but I have not much swelling but a bit red. A few days ago, it was still reddish, even now I think it still reddish. As you said, I'm very happy with it. There is some numbness on the right lateral side of my knee.
I:	Tell me about the numbness on the right lateral side of the knee.
P:	It's seems to be harder here. Is there any steel plate or anything here? I have to straighten up my leg when I walk. Previously, I walked 'Bengkok' (Malay word for 'bent'). After replacement, is the alignment straight? Is that why I need to walk straight?
I:	You should be walking straight. However, your bending may not be complete. You have bent about 100 degrees which is good.
P:	I can get on to the bicycle. They asked to bend forward and backward. I'm trying to do lifts as much as possible. Because this one (left knee – non-operated knee) can go right back. I don't kneel or bend down.
P:	My wife is very encouraging, very helpful. I don't need the maid that much. I don't like to use them. My wife helped and bathed me initially but now I bathe myself. My daily activities are coming back to normal…everything. Except for driving. I used to drive myself down to Carrefour and club for dinner on Sundays which is my other activity that I have not done yet. Now, my son and daughter-in-law and wife drive me there. I have not been to other clubs, social clubs yet.
I:	Do you look forward to go back to the clubs?
P:	Yes. I hope I could do it. I've seen quite a few fellows in the clubs who had knee operation. One of them had it done in Sydney, Australia. The surgeon who performed was one of the top in Sydney and a member of the same club. He was very happy with the surgery. That gave me an encouragement. But we had another local member, rather annoyed at him. He had an operation but also using a walking stick. I asked him how was your operation. He said, "You go and do it." I think it was a naughty answer. I was bothered anyway. He had done the surgery but still using the stick after so many months. Something must be wrong. He wouldn't tell me. I think he did it in Singapore. He was one year younger than I am.
I:	So, your friend was still holding the walking stick.
P:	He was still walking with the stick after a few months. I have two people. One encouraging, the other discouraging, lousy. Another was my wife's good friend at that time. Nearly 9 months after surgery, I think she must have not been exercise, looks heavy. She said the stitching was horrible done. I have also met Professor W, she's retired. Formerly a professor of pharmacy. She did hers. She told me that she was walking after one week. That was encouraging.

I:	Different experience with different people.
P:	I haven't spoken to her yet. I want to tell her that I should have taken your encouragement earlier but she did it in Tan Tock Seng.
I:	Would you encourage anyone else to go for the surgery?
P:	Yes. Yesterday, I spoke to this doctor's wife who had a pinhole surgery on her left knee 4 years ago. Recently, she had a fall. She said that they only checked her head, had MRI because she had a stroke. She asked me for the physiotherapist some months ago because I told her that she's good, she wanted to go. So I told her better get a referral, no problem. Her husband is a doctor, her daughter is the head of the Kandang Kerbau diabetes section. Her name is Ms C.K. Anyway she is the head. I haven't met her for long time. She has to call the ambulance to take her to NUH. I said once you go to NUH, you better stick to NUH. You know your cardiologist, MRI guys were there but my physio is only in SGH, is up to you.
I:	You have excellent memory, you can remember all these information
P:	I just spoke to her yesterday after I came back from physio. I'm very happy. She's very calm, very encouraging you know. And I owe the karma (good deeds) to everyone. If you can't heal, you can't do anything. That means something is wrong with you.
I:	That's good.
P:	She is already 77. If you are younger, they won't do it for you normally. Because it seems that this thing (implant) will last 15-20 years. It may loosen up or something like that.
I:	Why is it that you prefer to follow up your other activities later? Is there a sense of self awareness of how other people perceive the way you walk?
P:	No. I just wanted to strengthen my leg first because I can feel that there is a difficulty walking around. If I walk or climb excessively, I may ‘tumble’. I'm afraid of this. Because I was told that if I ‘tumble’, I may break my knee - the hinge. That is an expensive and very painful operation. I don't like this sort of thing. I’m very careful. I am a low pain fellow. I couldn’t care less how others perceive me. If they want to talk to me, I will talk to them. If you feel like talking to me, so be it! I’m happy with what I am. I don’t depend on anyone. Not that I am proud. If I am independent, why should I ‘kowtow’ (pay obeisance) to you or ‘booster’ you up. If you are snobbish, you can go and ‘fly kite’ <laughing out loud>. Sorry for my language.
I:	It's okay. Be your natural self.
P:	Nobody has helped me so far, nobody. As I’ve explained earlier, the fellow who was supposed to be a brother and yet don't let me know what's happening. Whilst the other guy, the Englishman, he said, ‘Ya, I did it. It's very good, no problem. Don't you see that I am walking?’ He climbs up and doesn't use a stick.
I:	How do perceive your body image?
P:	If I'm tired, I just sit down, I know there are benches around all over the place. In fact, I think I’m walking fine now. In fact, when I was using the stick, more people watched me. People will give me the seat and all that. But I'm not using that to get the seat. I am using the walking stick because it was very painful. The

	pain I am getting now is not from the knee. It is actually from thigh muscles, more strain there. Now, the knee is taking the pain. I'm trying to reduce my weight a bit more to reduce my knee pain.
P:	I'm quite a physical guy when I was young. I am quite small size. I used to take weights, do pumping exercises at YMCA, Orchard Rd. I can do a lot of pumping 30-40 times. I used to run down the stairs, walked all the way up. Walked down to Haji and down Crawford road, I like to walk. When I was young, between12-14 years old, I studied in Taiping before the war. I can climb up 3000- 4000 feet at Maxwell Hill. I go in the morning and come down in the afternoon.
I:	It has been a good experience for you.
P:	I managed to do all that. My friend, an European doctor, Dr T who has passed on. He told me that building up your body during your youth, 12-15 years old will take you through in later age. If you do it after that, there is no difference. In the old days, we do physical exercises twice a week. We called it PT training. During holidays, you cycle, walk or climb hills. Good thing there's Taiping lake. I used to run around the lake. We can do cross-country. That's why the Singaporean can never challenge the Malaysian born or Malaysian educated scholar because it is something that we do naturally.
I:	Is there any cultural influence on your perioperative experience?
P:	When I was young, I had to take Chinese medicines. It was hell of a bitter. We've been eating all sort of funny things. But for the English educated, we are more inclined to western medicine. My ambition before the war was to become a doctor as I excelled in my physiology studies. The war spoiled everything. I went back to school. I took a bursary at the university but need to support my parents. I'm more inclined towards Western thinking. There are a few doctors in the house. I don't like needles. A friend of mine, Prof T, an anaesthetist who started acupuncture at SGH wanted to do it on me. I refused as I don't like needles <laughing>. I take Ginseng which I hear that people said that it is good.
I:	I think you've already shared a lot with me. Thank you so much, Mr Lim

Appendix 5.2: Transcript of First/Second Interview of Kate FS7-76 THR

KateFS7-76 Right THR 1st Interview 6/5/12 (6th POD)	
I:	Thanks firstly for agreeing to the interview <ya>. <Erm> The focus of this 1st interview, we're going to have 2 interviews, the focus of this 1st interview will be to understand your peri-operative experience. As a doctor I think you'll be very good in medical terminologies.
P:	<Um Hm>
I:	<Ya> So, peri-operative experience just let me explain, will be the experience before surgery
P:	<Um hm>
I:	The experience during the surgery intra-operative
P:	<Um hm>
I:	When you were in the operating theatre <ya>, and also the experience you had after the surgery when you came out from the operating theatre until now, now that I have spoken to you
P:	Yes.
I:	The 2nd interview will be focus on the time, on your experience from the time I've ,er> from the time that we stop from now till the time I meet you again.
P:	<Um hm>
I:	That will be your 1st out-patient appointment with Prof Lo.
P:	Yes.
I:	Not sure when the date will that be..
P:	<Ya> Don't know.
I:	He'll be probably tell you at the point of discharge.
P:	<Mm> Yes.
I:	Okay. So that's our focus for today. So if we could focus for a start on the pre-operative, from the time that you decided to go for surgery, in this case is your hip, which side of your hip, I?
P:	Is the right hip.
I:	Okay, is the right hip <ya>.
P:	<Um hm>
I:	So from the time you decided to go for the right... for surgery on your right hip, till then from then till the time <er> from that onwards itself <ya>, your experience <erm> living with the condition of your hip and onwards <ya>
P:	<Um hm>
I:	I'll just let you speak <ya>.
P:	<Um hm> Okay. Well I suppose that the right hip pain started intermittently about 3 years ago,
I:	3 years ago.
P:	Yes and I also have a little pain in the left hip, but that seems to be okay at the moment.
I:	<Mm>

P:	And in the last 6 months, I think it got worse, much worse (The right hip)
I:	Worse.
P:	Got worse. And in particular in the last 2-3 weeks, and I really haven't been able to get round the house properly. In my flat I use my rollator which has been a great help because I could lean on it.
I:	What do you call this?
P:	A rollator
I:	Rollator, okay.
P:	Yes, I got it from Singapore, DNR. And the last 4 nights before admission were very difficult, but I had been given good analgesics, and I was put on to Etoricoxib, <erm> I was having 90mg daily
I:	<Um mm> What is the name of the analgesia again?
P:	Etoricoxib.
I:	Etoricoxib.
P:	<Ya> Arcoxia.
I:	<Mm> Okay.
P:	And also..
I:	When did you start Arcoxia?
P:	<Oh> When? Well I had the pain. I supposed Arcoxia started may be 2 to 3 months ago.
I:	Okay, 2 to 3 months ago. <Um mm>
P:	<Mm> I had previously been and am still under the care of the spinal department.
I:	Okay.
P:	Because <erm> do you want to hear about that?
I:	If there's a relation, definitely.
P:	Well, I mean to explain why I'm being on analgesics before my hip pain started.
I:	Alright.
P:	Yes, I <ah> lifted up a heavy suitcase on January, 29th.
I:	Which year?
P:	2011.
I:	<Oh> Last year.
P:	<Um mm> And I felt a strain when I was weighing the suitcase, a small hand-held spelt (digital scale)
I:	Okay.
P:	You lifted it up
I:	Yes
P:	And anyway I knew I felt a strain on my back, and the next morning when I woke up in India, I realised it was, you know, quite... quite painful.
I:	<Mm hm>
P:	And <ah> I did what I needed to do in India, and when I wanted to come home, unfortunately Bangalore Air Show was on, and there was no plane, so I have to come back. And in February, <ah> 11th or 14th or something, and I went to A&E on my 2nd day of arrival, on 16th Feb

I:	That was last year?
P:	Last year. Yes. And...
I:	What makes you go to A&E?
P:	Because of my back pain.
I:	Okay, back pain.
P:	Yes. And an x-ray was done and showed I got a fracture of L1. First the investigation revealed, the burst fracture of L1. To cut the long story short, I had 2 parts spinal operation
I:	Yes.
P:	And the surgeon, Dr J. C discovered the operation that I got, <ah> spondylosis in 2 areas
I:	<Hm mm>
P:	Plus osteoporosis. Worst was the fracture of L1, and it needed the fusion of T10 to L5. And, so I have lots of metal work inside, and <erm> I still get some, had some pain in the back. I cannot stand up straight yet. And... I was getting lean. <Ah> This hip pain worse.
I:	<Mm>
P:	And...
I:	You explained that the Arcoxia that you had.
P:	Yes, yes. I.. I explain the Arcoxia later. But <erm> yes...
I:	When did the hip start worsening?
P:	I think it really got worse about a month ago, very bad in the last 2 weeks and I'm so glad that it (the operation date) was already arranged that time I was coming on the 30th. I came along Monday, the 30th (April 2012).
I:	Okay.
P:	Same day admission, same day operation.
I:	<Um hm>
P:	So I went to <erm> Block 5, ground floor,
I:	<Um hm>
P:	And I was told to come there at 9, and the operation was for 11,
I:	<Um hm>
P:	But <erm> there was lots of hanging around
I:	<Mm>
P:	And I eventually had the operation at about half past two, may be something like that.
I:	<Um hm> Half past two, alright.
P:	And.. so there was a lot of hanging around down stair, it was very chilly as well.
I:	It must've been cold. Was anyone with you <ya>?
P:	I had my maid
I:	Okay
P:	Accompanied me <ya>
I:	<Um mm>. Is your maid, she has been someone who has been with you for a number of years?

P:	14 years.
I:	<Wow> Okay, so she is very familiar with...
P:	Yes, she is.
I:	Alright.
P:	And she's good. And... so I had the operation and... do you want to know about...
I:	If you could just go back, go backward, before you coming for the operation, we still focus on the pre-operative for now.
P:	<Um hm>
I:	Pre-operative for now. <Erm> So.. you... how was your life <erm> when you discovered that you have the hip condition, how was your quality of life, <erm> how was your coping with pain <ya>?
P:	Well, that <erm> coping would go back to my spine operation, because I had to walk with the rollator.
I:	Alright.
P:	Since then I have hardly been out at all. My social life was more or less being physiotherapy and out-patient treatment. And...
I:	Coming out... coming out for physio?
P:	Yes, from home.
I:	Okay, from home.
P:	<Um> So I've done relatively little in the social line and...
I:	<Um hm>
P:	And...
I:	So you mainly confined at home
P:	Yes.
I:	And the visits you had to the...
P:	Yes. I found when I walked with this, I had to lean forward
I:	Okay.
P:	Which caused <erm> back pain. And.. so I couldn't do it for long. And also it's a bit tiring on the arms.
I:	So the main care-giver is your maid <ya>?
P:	Yes.
I:	You mentioned she is being with you for 14 years
P:	Yes.
I:	So, how do you find <erm> your care-giver, the support that she gives?
P:	<Oh> She is very good. She.. I'm unable to bend very much and I cannot do my back. For example, when bathing, so she.. she baths me. And I use a <erm> one of the wide <erm> seats for bath
I:	Right.
P:	<Erm> Not... Bariatric, bariatric.. and..
I:	Bariatric? What's that?
P:	<Mm> For bathing which is a great help. And I had not needed to use that for passing urine after this operation. I have to see how I get on, may or may not need it.

I:	Okay.
P:	I have also got a.. a bar at the side of my bed which helps me to get in and out.
I:	Right.
P:	I have a raised plastic toilet riser, a seat to put on top of the seat.
I:	The seat that we saw just now?
P:	Yes, that's right, Which is good. And...
I:	Okay. In term of your activities of daily living, <ah> you need someone, in this case you need you maid to help you, just to facilitate, for example putting up the toilet riser, <ya> <erm>.. <ya>...other than that..
P:	<Mm> I just need that, just left them on it.
I:	So you find that you are independent to a certain level?
P:	Yes.
I:	Except for help here and there.
P:	I can get round the flat using this (rollator)
I:	Okay. Where do you stay, I know stated there Cloney Road, is your flat or terrace house?
P:	It's a ... Cairnhill Road.
I:	Cairnhill Road?
P:	Yes.
I:	Yes. 69, Cairnhill Road.
P:	That's right.
I:	It's an apartment?
P:	Yes., yes. It's a tall block. I'm on the 9th floor.
I:	Yes, so you don't have to climb up steps <ya>. You have to climb steps?
P:	Well, <erm>.. the... I .. always use taxi nowadays, so the taxi brings me up the hill to the 2nd level where the lift stops, it's a stupid design.
I:	Okay. So the taxi brings you up to 2nd level.
P:	Yes, yes. And I take the lift from there.
I:	Okay. To 2nd level, but lift is at level 2, so immediately can access the lift at level 2.
P:	Yes, I get in at level 2 and go to level 9
I:	Okay, alright. So <erm> that was coping with the... in term of social life and as well as your activities of daily living and the mobility. So, how do your find the limitation in your mobility with your condition?
P:	Well, I am being unable to get out much.
I:	<Mm>
P:	And I would very much like to go to a lot of concerts, that I was hoping on recently, I like music...
I:	Like music, yes.
P:	<Hmm> So, but I listen to lots of music on the radio and...
I:	TV?
P:	BBC world, Radio
I:	Watch TV <ya>

P:	I do watch the TV in the evening often, there is a decent program on
I:	<Hm mm> A decent program
P:	(Chuckle) <ya>
I:	Do you often follow your regular ones?
P:	<Ah..> I like nature
I:	Nature
P:	Yes.
I:	<Mm> Okay.
P:	Is a little decent and series on, I like to see those
I:	<Mm hm> Okay.
P:	They come from London and not very often here.
I:	<Hmm> Okay. Where about do you come from?
P:	I was born in England.
I:	Okay, born England.
P:	Education in England,
I:	Education in England.
P:	And went into medical school in England.
I:	Okay.
P:	And I did 3 house jobs in Birmingham. And then I went to Kenya,
I:	<Mm>
P:	South Africa and worked for a year in Nairobi
I:	<Um mm>
P:	And back to England. And then I was recruited to Hong Kong
I:	<Mm>
P:	As Medical Health Officer. So I went out there in 1964, 65 February. And I was there as anaesthetist. I went there, they put me to department of anaesthesia.
I:	<Ya>
P:	So I learned there. Then I left there to have my 4 children.
I:	<Mm>
P:	Then when I went back to government unit, I was in the... it was a general practice unit looking after the civil servants and their dependents.
I:	It is.. where is it? Hong Kong?
P:	It was in... my particular clinic was on Hong Kong island, there was another one in Kowloon, Queen Elizabeth Hospital.
I:	Okay.
P:	But it was supposed to be for <erm> the senior English speaking...
I:	Veterans?
P:	<Ah> English speaking members of the...<ah>
I:	Civil service?
P:	Civil service, yes. <Hm>
I:	Just like I think in the U.S., they called it P.A. - Patron...
P:	I don't know.
I:	<Ya> In the U.S., they have hospital sometimes for the military..

P:	<Mm>
I:	So they.. follow-up treatment.
P:	<Ya> We looked after the current people
I:	<Ya>
P:	They were currently working
I:	<Mm>
P:	We did of course looked after <erm> the retirees too.
I:	<Mm> Alright.
P:	For their tentitled.
I:	Okay. So you are not exactly working in Singapore but because <ah> your husband was working here that you mentioned.
P:	<Mm>
I:	That's why you are here, in Singapore, <ya>
P:	<Mm>
I:	<Ya>
P:	<Mm>
I:	What about your children? You have 4 children.
P:	Yes they were all born in Hong Kong.
I:	<Um mm> Where are they now?
P:	They are all living in England. Based in England. And the eldest is 44, and he is a pilot for DHL,
I:	<Mm>
P:	He flies cargo around Europe.
I:	<Mm>
P:	And the second is a daughter, R. whose <erm> she qualified in.. she did History of Art, and then she converted to Law.
I:	<Mm>
P:	And.. but she is a full-time mother now.
I:	<Mm>
P:	And the third one is a doctor, she is the one who is here at the moment for 12 days with me, and she's qualified in London, just a GP in Gloucester
I:	<Mm>
P:	And the fourth one is a solicitor in London.
I:	<Mm>
P:	<Mm> That's the 4 children.
I:	<Ya> Okay, so they all over in U.K.
P:	<Mm>
I:	And you are in Singapore.
P:	<Mm>
I:	Okay. So they come here often to visit you?
P:	<Ah> I go and visit them, that's approximately once a year.
I:	<Um mm>
P:	The children all have been very good. They all come out last year when I had the

	spinal operation, and 2 of them came out in August when I had to have a repair of hernia because of the 2nd incision (of spinal operation), that is hernia which is anonymous lumbar hernia. Unfortunately that has recurred, but there is nothing to be done about it at the moment.
I:	<Mm> They put a mesh in you?
P:	They had put a mesh, yes.
I:	<Yup>
P:	And...
I:	Okay. Right. You had you... before surgery itself, you had your pre-admission testing?
P:	Yes.
I:	Where you had to move at certain point in time, I mean for that day, certain area you had the test done
P:	Yes.
I:	And also at that time, you may have also been interviewed by the anaesthetist?
P:	Yes.
I:	Yes, can you tell me about your experience during the pre-admission test?
P:	<Umm> I think my appointment was 9 or 9.30 something like that. And it took, well a lot of parts to it. And afterward I had to go back to the out-patient department
I:	Alright.
P:	Clinic. And.. then I had to go to see the <erm> people who... is it <erm>... somebody call 'W' who...
I:	They measured for you?
P:	Yes, they measured, angle that sort of things. So I have to go as well. I think all together it took probably about 6 hours may be..
I:	<Um mm> You have to move fair bit?
P:	Yes.
I:	6 hours?
P:	I got home about 2.30pm. I found it quite tiring, there was so much walking. I brought the rollator, I wasn't using a wheelchair.
I:	<Mm>
P:	And... it's quite <ah> exhausting.
I:	<Mmm> Okay. Did you try asking for wheelchair?
P:	No, I didn't. Because I just went from one place to another.. (chuckle)
I:	Okay. You were so immersed in what you were doing.
P:	<Mm>
I:	<Ya>
P:	Yes, just go for chest x-ray and
I:	<Mm>
P:	Come back...
I:	How do you find the staff who handled you at the departments?
P:	<Oh> Very good, no complaints <mm>.

I:	<Mm> So <erm> during the point that you had the hip condition, the way you walk, I know you mentioned that most of the time you are mainly confined at home other than going for physio, but how do you see yourself, <ah> how do you perceived, are you aware of how <ah> other see you in term of your body image? The awareness of your body image when you go out... when you go out?
P:	Well, I wear this <erm> brace.
I:	Braces.
P:	Back brace.
I:	Back brace.
P:	So that made me a bit more obvious and also this (rollator), I get many many admiring glances for the rollator (laughing)
I:	Okay.
P:	<Ya>
I:	Is like your Mercedes <ya>.
P:	Yes, that's right, it's my Rolls (chuckle)
I:	<Ya> Rolls Royce <yup>. Okay. But are you aware of people <ah> looking at you, conscious looking at you, how do you feel?
P:	Well, I've being so long and an odd person in a sea of other
I:	Sea of other
P:	Sea of the other people and so <erm> I'm pretty used to being a white face among others.
I:	Okay. What face, sorry?
P:	White face among others
I:	White face. What do you mean that?
P:	White, pale.
I:	Okay. 'AngMo'
P:	Yes.
I:	White face as Caucasian.
P:	Yes, that's right.
I:	Okay. Alright. That is as a Caucasian. But in term of your condition the way you moved, even as a white, white is another, okay within the Asian society. The way you moved, are you very much aware how people look at you or is.. because you mentioned that it's been a while <ya>. Are you aware of... are you very concern on how people look at you the way you walk? I just want to hear from you.
P:	Well, I walk quite slowly using this. And, so I.. I never feel very self-conscious about it all, man.
I:	<Um mm> Okay. So you are not self-conscious, you just pursued on what you need to do.
P:	Yes, that's right.
I:	You find it necessity.
P:	Yes.
I:	You just progress on with it
P:	<Mm>

I:	<Ya>
P:	Yes.
I:	Regardless of how others may think of or may see you, you just progress on
P:	Yes.
I:	Okay, alright. <Erm> Can I just ask on your religion? Are you Catholic? Christian?
P:	I'm.. I'm basically Christian.
I:	Okay. As a Christian, how do you see yourself coping, how do think your faith helps you go through this condition?
P:	Well, I think <erm> prayer is very important.
I:	Okay.
P:	And.. and one's belief in God, this <erm>... important.
I:	Okay, alright.
P:	It's the strength.
I:	That gives you an inner strength
P:	<Mm> That's right.
I:	To give you move on <ya>. Okay. Do you go to Church, Ms I? Do you go to church?
P:	I haven't been to church for over a year because of the difficulty in going, as my maid is off every Sunday.
I:	<Mm>
P:	And <ah>..
I:	Do you have church friend come over to see you? Visit you?
P:	<Mmm..> No.
I:	Not really.
P:	No.
I:	Okay. How do you draw your strength then? The inner strength from the faith that you mentioned.
P:	Well <erm> I said basically Christian, but I don't exclude other religions. And I have I been for.. being handed over a year <erm> to Tibetan Buddhist teachings, Lama Yama and I.. I also <erm> have been in a chanting group which helps and...
I:	Chanting, Buddhism?
P:	Yes.
I:	Looks like you have exposed yourself into...
P:	Medicine Buddha.
I:	<Oh> Medicine Buddha?
P:	Yes.
I:	That's interesting, never heard of that <ya>. What's that?
P:	<Ya> Well, there are actually 7 Medicine Buddha, but there is one in particular, so of
I:	<Mm>
P:	And...
I:	Okay, Alright. So you have... you have... you believe in other religions

P:	Yes. I.. I..
I:	Yes. No doubt you are a Christian, you believe in other religions.
P:	Yes. That's right.
I:	Okay. So you find your faith as a Christian, <ah> gives you the inner strength to go through your journey <ya>
P:	<Hm> Yes.
I:	Okay. Are you a staunch Christian? Not because of any religion person but I just want... because the faith itself sometimes it will help a person to go through...
P:	I.. I have a firm spiritual faith. Yes
I:	That's great.
P:	<Mm>
I:	Okay. Alright. Let's ...
P:	I have friends who been chanting for me and praying for me.
I:	Chanting, Buddhism?
P:	<Um mm>
I:	Okay. In Singapore?
P:	<Um mm> Yes.
I:	Okay. That's great. That's great. <Ya> For me, I'm used to be a Christian, but now I'm more towards Buddhism.
P:	<Ya> Yes.
I:	<Ya> Let's move on to your experience now. Okay, you mentioned that you had a same day surgery
P:	Yes.
I:	On the admission. So you were there and you were waiting and it was rather cold you mentioned. okay. You went up for surgery?
P:	Yes. <Erm> I found it.. I thought it was not what I expected at all. I thought one would be going into a place, a ward with beds.
I:	<Mm>
P:	And a locker. So you can put things in and get the things out if you want to show to doctors like the medicines so on.. But it's all...
I:	Okay.
P:	I have no access to it.
I:	Okay, you had no bed, but they gave you a seat to sit down.?
P:	<Um mm>
I:	Okay. So you have to wait there?
P:	Yes.
I:	How long did you have to wait?
P:	<Hmm>
I:	A lot of hours?
P:	I think... at least 3..
I:	Okay, 3 hours.
P:	<Mm>
I:	That's before you go up for your surgery.

P:	Yes.
I:	How were you brought up to the operating theatre?
P:	<Erm> I went... out in the lift walking
I:	Walking?
P:	And outside the lift they got a trolley
I:	<Um mm>
P:	Which I got on to.
I:	Alright.
P:	And <erm> then I went into the anaesthetic room,
I:	<Um mm>
P:	Induction and I had to wait a long time there. It was interesting because I could hear the drilling and sawing inside going on and the voices took me brought back to my old days of anaesthesia.
I:	Okay.
P:	<Mm>
I:	When you hear those noises knocking, was it during your surgery or were you still in the induction room?
P:	No, I was still waiting to have my operation, yes.
I:	Okay. Alright.
P:	And that was fine. (chuckle)
I:	Okay. Something familiar.
P:	<Mm> Yes. And then...
I:	How was your feeling, how were you feeling then when you were in the induction room?
P:	Well I suppose pretty calm about it I should say.
I:	Okay.
P:	And I knew the anaesthetist because he had given me my 3rd anaesthesia,
I:	Okay.
P:	For the 3rd operation here <ya>
I:	Alright.
P:	And he came in and said <ah> "how do you want your anaesthesia or something "A good anaesthetic so that I don't know anything about it" and so on. And he gave me a choice between having a regional and <erm> general. So I preferred general anaesthesia. I have never had a regional.
I:	<Um mm>
P:	And I always had many of them, general anaesthetic. And so we discussed that. And...
I:	<Mm> Why do you prefer GA as compared to RA?
P:	Well I don't fancy the idea of hearing the saws and machines and tapping and knocking that sort of thing ...
I:	Will they...
P:	Anyway, he said that.. I think he was relieved that I said GA because he said that he would have thought that was the best <erm> in case of complications.

I:	<Mm> Okay. So GA was the best option for you.
P:	<Mm> Yes. <Mm>
I:	Okay. But if you were undergoing RA, if that was your decision and you will aware the things around you, would it cause you a bit more anxious? Will it be anyway?
P:	<Erm>
I:	That makes you more...
P:	I would... I would be very alert in listening for everything.
I:	Alright.
P:	I think it could be quite exhausting
I:	Okay. Alright, so you rather..
P:	<Mm>
I:	Sleep and rest.
P:	Yes <ya>
I:	Okay.
P:	I had my 4 caesars all under GA too.
I:	<Oh> 4 caesars?
P:	<Mm>
I:	<Wow> Alright. Okay. So you went through the surgery under general anaesthesia, could you remember anything before you went off to sleep?
P:	Well, it was nice that Dr H came by and also Professor L.. And he was asking me whether I had a longer leg, and so I.. so I thought I had. Imagine it in Hong Kong. I was in professor unit and they decided that I had (chuckle) gotten longer leg
I:	What leg?
P:	Longer leg. I had had sort of limp for many.. many years.
I:	Okay.
P:	Since my childhood
I:	Which leg? Which leg is that?
P:	I couldn't tell which leg I..
I:	<Oh> Okay. Alright. Why do they ask you this question?
P:	Because after this operation is not unusual to have one leg longer than the other
I:	<Mm> Okay.
P:	Which usually be remedied by having a heel raise or some form of shoe raise
I:	Okay, alright. That's some physical remedy that they will need to do.
P:	<Um>
I:	<Ya>
P:	I also mentioned the fact that I was prone to having seroma and developing, so...
I:	Seroma
P:	He (Surgeon) put a deep drain in and quite a lot of fluid came outside, that's a good thing, a good move.
I:	<Mm> Okay, alright. Okay. So you slept through. So how do you find the staff in operating theatre if you could remember?
P:	<Ya> Fine, very nice, helpful. <Er> Unfortunately my 2 best veins in my left

	hand were... the anaesthetist woman who was doing it made a mess of the whole thing. So in the end...
I:	<Mm> They were good veins?
P:	They were good veins.
I:	Okay.
P:	<Mm> Those were messed up start with. Anyway, the anaesthetist himself did the final one on my right.
I:	Alright, okay. So you could remember the experience of them trying to look on the right side
P:	Yes. yes, yes.
I:	For the vein on your left hand side
P:	No, no. I remembered they said " <Oh> bring in the oxygen and the mask had a funny smell to it", anyway, breathed it in. They gave me Propofol to induce anaesthesia and I gradually went out.
I:	<Mm>
P:	I remembered that.
I:	Alright. So when you woke up, where were you?
P:	In the <erm> recovery room.
I:	Recovery room, okay. So how was your experience in the recovery room?
P:	That was fine.
I:	<Um mm>
P:	And...
I:	Okay. You have any... what about the pain level? The people around you, the environment if you could remember?
P:	Well I remember seeing the room.. and people going in... they in and out
I:	<Mm> Okay.
P:	And <ah> the.. what is the graph for.. what is it?
I:	Okay, the oximeter
P:	Oximeter, yes. They said "breathe, breathe more" that sort of thing.
I:	Okay. <ya> Could be your sat was coming down.
P:	<Mm> And they said those... send me to <erm> high dependency.
I:	<Mm> What is the pain... is there a pain management that they gave you, <erm> is there pain device that they gave you post-operatively?
P:	Yes, I had the.. <erm>... Patient...
I:	PCA?
P:	Yes, yes. Morphine.
I:	Patient Controlled Anaesthesia. Did they explain to you before the surgery?
P:	I had it explained.. I had it explained before that you could press it and then if the pain still there, you could press it 5 minutes later because it's <erm> time activated.
I:	<Mm> When was that explained to you, Ms I? PCA.
P:	Well I had that before <erm> with my spinal operation.
I:	So you had it again so it was something familiar

P:	So.. it was familiar, yes.
I:	So <erm> did you use the PCA?
P:	I did. Yes.
I:	<Mm>
P:	Yes.
I:	<Ya> So you press it each time.
P:	Yes.
I:	<Ya>
P:	Now in addition to the hip pain..
I:	Alright.
P:	I have a lot of right hip femoral pain. Pain at the back of right femur and right thigh. I wondered even... whether I got a crack there because I had a strange accident when I <erm> was getting out of bed, I was very sleepy ...
I:	When was that?
P:	One morning. This was supposed...
I:	At home or here?
P:	At home. No hospital..
I:	At home.
P:	Yes. I was drowsy in the morning, and I was preparing to get out of bed at the side where I got the bar <erm> to help me. And I had to get myself sort of diagonally and case specially for my spine for getting up and I must rip it off and my right foot slid along the heel and my whole right thigh dropped off the side of high bed.
I:	<Mm>
P:	And I felt that time got up, I yanked my <erm> right hip. And then later thought I had jerked my spine too. So I was a bit worry about that. <Erm>
I:	Did they examine?
P:	Yes. And anyway, I realised that it was neuropathic pain which I had had previously. And continue <erm>in the left leg and then that stopped. And then I had it in the right thigh
I:	Okay.
P:	I knew it from the spine because I was sitting at my washhand basin to clean my teeth. While I got this pain in the right thigh and I looked up to tilt my chin to look up high to the clock and that make the pain worse. So I realised there is a connection between the spinal column and the neuropathic pain I was getting, and that has been severe, very troublesome.
I:	<Mm>. That was before your spinal or after your spinal?
P:	After. Before... before the thigh, the <ah>..
I:	Before the hip surgery.
P:	Yes in the last 2 months, I say 3 months
I:	2 months ago. 2 to 3 months.
P:	2 to3 months. 3 months ago yes.
I:	3 months.

P:	And my femur's x-ray was clear.
I:	<Mm> So that cleared its doubt that there wasn't a fracture.
P:	<Mm>
I:	<Ya> Neuropathic pain
P:	Yes. yes.
I:	Okay.
P:	So I was given for that <erm> Gabapentin.
I:	Gabapentin
P:	And then it was changed to Pregabalin, Lyrica. And then I went back on the Gabapentin when the other one, the Pregabalin had finished.
I:	<Mm>
P:	Because I still have a lot of Gabapentin which had been given to me just before I was changed over.
I:	<Ya>
P:	And it's expensive.
I:	<Mm>
P:	I thought why not use that first
I:	<Mm>
P:	Of course, Pregabalin was more expensive
I:	<Mm>
P:	And I'm on that at the moment.
I:	<Mm>
P:	And <erm> I'm... since the operation, I've been relatively free of the neuropathic pain.
I:	Okay.
P:	I'm glad to say.
I:	<Yup> That's great.
P:	As far as the hip pain, <erm> I'm not getting the same hip pain that I had before. I mean it still sore and is just as I would expect because of the recent operation. And but I can't walk it is not very comfortable, walking but I can. And I'm doing quite well right now.
I:	<Mm>
P:	And I'm doing back exercises
I:	On the bed?
P:	Yes. And...
I:	You had physio <ya>?
P:	Yes. The physiotherapies had been.
I:	How.. when the physio start after..?
P:	I've been having physiotherapy since my spinal operation really
I:	Okay. But after this surgery, the recent hip surgery, when did your physio start?
P:	<Oh> You mean on what day.
I:	After operation.
P:	They came, I think somebody came the following day.

I:	Okay, the following day. That means the day after operation.
P:	Yes.
I:	Okay.
P:	I just got... they explained what I was going to be doing and got me to my feet up and down and some..
I:	<Mm> I see that you are wearing the surgical stocking.
P:	Yes.
I:	Surgical stock. You are not wearing the Tedd stockings?
P:	No, the one I got, the Tedd is too tight.
I:	<Mm> Too tight.
P:	So this was being made for me.
I:	Okay. <Ya>
P:	Yes.
I:	This better than the Tedd stockings?
P:	Yes.
I:	<Ya> This one is mid-way <ya>.
P:	Yes.
I:	Quite tight. Quite high up <ya>
P:	<Mm>
I:	So who wear the stockings for you?
P:	Well..
I:	You able to do it, Ms I?
P:	I can't do it myself because I'm not suppose to bend.
I:	<Mm> Okay.
P:	And I cannot go forward.
I:	Okay.
P:	So the nurses, yes or my.. my maid she does it. Or else my daughter here.
I:	<Mm> Okay. Glad that your daughter is here.
P:	Yes. I'm so glad she is here, she's wonderful
I:	She is your 3rd one right?
P:	She is number 3, that's right (Chuckle)
I:	The one who is a doctor.
P:	<Mm> That's right.
I:	Okay, so you had physio done. How do you find <erm> the physiotherapy that was done for you? How do you find the staff that assisted you?
P:	Fine <yup>. Very helpful, very nice.
I:	<Um mm> <Ya>
P:	And caring.
I:	Okay. They <erm> helped you walk in the ward, have you gone to the rehab department?
P:	No, haven't been there.
I:	Down-stair haven't been there yet?
P:	<Ah> When you said rehab, do you mean next to the pharmacy and the out-

	patient?
I:	Yes.
P:	Yes, I have been attending there.
I:	Okay.
P:	But not since I being here.
I:	<Oh> Not since you been here?
P:	<Mm>
I:	Okay.
P:	I thought you meant a sort of rehabilitation for gym sort of things,
I:	<Mm>
P:	For orthopedic patients.
I:	<Mm>
P:	But that not what you meant?
I:	<Ah> It could be I mean different patient going to different place but basically is not just confined to the ward, they move you somewhere is like satellite rehab centre
P:	I haven't been there.
I:	So that mean you are mainly in the ward.
P:	Yes.
I:	Walking in the ward.
P:	Yes.
I:	So the physiotherapist <erm> guided you
P:	Yes. And I've being walking in the corridor well.
I:	Yes. So you know the corridor pretty well.
P:	Yes. (Laughing) I'm fortunately I have actually the same room, the same bed as I was in for my spine.
I:	Same room?
P:	Yes.
I:	<Oh> Same bed also?
P:	<Um mm>
I:	<Mm> It's ...
P:	I'll tell you something. When I was here for my spine, I just had no appetite
I:	Okay.
P:	And you could smell the cooking and it wasn't very pleasant. And then this time I recognised the same smell (Laughing). I'm talking about the cooking of it. The kitchen must be down-stairs or something.
I:	<Oh> You are very sensitive.
P:	<Um mm>
I:	You are in block 7
P:	Roasting meat and bacon in the morning (Chuckle)
I:	<Oh> You can smell that?
P:	(Chuckle) <Mm>
I:	Block 7, is quite far away from the kitchen.

P:	Is it?
I:	<Um mm> The kitchen is like a few blocks...
P:	They have cooking somewhere, may be is a staff canteen or something..
I:	Possibly. Possibly the staff canteen <ya>. Block 7, below block 7 <ya>, is the public canteen.
P:	<Mm> Yes.
I:	<Ya> You are very sensitive. This is level 6
P:	Yes.
I:	<Ya> That means you have very keen senses. Do you?
P:	Yes, I have, yes.
I:	<Ya>. Okay, alright. So after the operation itself, <erm> how are you coping post-operatively?
P:	Fine.
I:	<Um mm>
P:	Yes.
I:	<Ya> I can see that you.. I mean.. correct me if I'm wrong that you are very <erm>...you... you strive to be independent?
P:	Yes.
I:	Yes. Can you tell me more about that? I think you.. this strive... the way I see you walk that you are <ya>. Why do you see the need to be <ya>? I know you have a helper.
P:	<Hm> But.. my husband died 8 years ago.
I:	Alright.
P:	So I..
I:	In Singapore?
P:	Yes. He had cancer, he was looked after here, <yea> but he died at home. <Erm> I got used to being independent
I:	Alright.
P:	<Erm> I have kept the same routine pretty much. <Erm> We spent our years together, we tried go to Europe to visit the children in Summer. Of course I haven't able to do any travelling last year or this year <ya>..
I:	Okay, so that makes you, you have grown used to the life to be independent.
P:	Yes.
I:	<Ya>
P:	Yes.
I:	Okay. Alright. I think... you shared with me that your children all are in UK and you are in Singapore. What makes you to retire here, and then why not in UK where your children are there?
P:	<Ah> Yes. I'm used to the Far East
I:	Okay.
P:	I don't like the cold weather
I:	(Chukcle) Okay.
P:	<Erm> Too hot weather also perpetual Summer we get here is not ideal

I:	Okay.
P:	But I preferred to Europe's cold dry winters.
I:	<Ya>
P:	I really don't like cold, my fingers go blue.
I:	<Mm>
P:	I feel blue inside
I:	<Mm> <ya>
P:	<Mm>
I:	<Ya> When I go to.. when I'm out in Manchester last year, I think it was Autumn but it was really cold.
P:	<Mm>
I:	<Ya>
P:	Yes, so I do like my independence.
I:	<Ya>
P:	I value it.
I:	<Ya>. That's great. <Yup>. Okay. <Erm> Even as a white, as a Caucasian as you mentioned white, How do you see yourself going through this <ah> surgical experience differently from a Chinese, Indian, Malay because you have actually involved in Far-East Asia, Asian setting. So you know multi-ethnics, so how do you see yourself different going through this experience as compare to Malay, Indian and so on? Do you think there is any difference?
P:	Not really. I do noticed that the Muslims all seems to be wearing their..
I:	"Tudung".
P:	"Tudung". The head scarf. At the moment, they were seemed to <erm>... there is one couple, an elderly man and a woman who were sitting in the ward all night with one patient.
I:	<Um mm>
P:	So they seem to look after their flock pretty well and I think they.. duty taken of.. taking well
I:	<Um mm>
P:	<Erm> I think it is very good.
I:	So <erm> therefore, you mentioned that about that sort.. as a Malay, it is true the Malay are very <erm> the whole group will be there
P:	Yes.
I:	If there is anything activities that sort of things
P:	Yes, yes.
I:	Other than that? As a Caucasian, how do you find? That's the Malay, what else do you see the difference that you had gone through surgical experience different from them? Or probably you...
P:	I don't have any interesting different.
I:	<Mm>
P:	I mean it is easier for me because I am used to surgeries and anaesthesia, ward life and so on in the past.

I:	Okay, is your medical background that has <ah>... you find that you could go through this journey...
P:	<Umm>
I:	Something that is familiar background, familiar environment
P:	Yes, yes.
I:	Okay. Anything else you would like to share with me that which I may not have asked? I think, <ya> as in your experienced, anything concerns that you have in term in relation to your hip operation, I know is your hip and spine? <Ya> I mean, as a person, it comes together, you can't segregate them with the hip and spine. It comes together is a holistic. When you move yourself as a whole, is a whole body <ya>. Any concerns with your hip surgery or even spine surgery? What do you plan to do after surgery?
P:	Well, I am concerned that I am unable to walk properly and upright. And...
I:	Because you mentioned that it's a bit bend.
P:	Yes.
I:	That's relation to your spine.
P:	That's right. That's related to the spine surgery.
I:	<Um mm>
P:	And...
I:	And how would that connect to your hip surgery? That is your concern that you are unable to move upright <ya>> Would that affect you hip?
P:	I think it might have.
I:	Okay.
P:	Because <erm> leaning forward to a certain extent. Probably rubbed the head of femur.
I:	<Mm>
P:	On the different part of the acetabulum, or something (the cartilage) and worn it out.
I:	<Mm>
P:	In fact <erm>, for the last 2 to 3 weeks, I was hearing "click click click, crack crack". Just like a bag of pebbles.
I:	<Mm>
P:	From my hip.
I:	<Mm>
P:	<Mm>
I:	You mentioned that to Prof L when he come to visit you?
P:	Yes, I did. Yes I told him when he came into...
I:	To the ward?
P:	Into the induction
I:	Induction?
P:	Room <yup>. before I had my...
I:	Surgery.
P:	<Yup> Anaesthetic.

I:	After surgery do you still hear this sound?
P:	No.
I:	Okay..
P:	That's gone.
I:	Is gone, so that's good, is resolved.
P:	Yes.
I:	<Ya>
P:	<Um mm>
I:	Okay.
P:	Dr H thought would be gone (chuckle)
I:	Okay.
P:	Take care of that. And I asked <erm> them if I could see the head of femur
I:	<Mmm>
P:	And so they said '<oh> yes, we'll take a photograph of it'.
I:	Okay.
P:	They said if you has seen it, you might not remember having seen it. That sort of thing
I:	(Laughing)
P:	So to my delight, they brought along the head of femur. So my daughter has taken it home
I:	<Oh...> Okay.
P:	And put it in gin (Laughing)
I:	Serious? <Oh..>
P:	And I've leave it sitting in the fridge.
I:	<Mm>
P:	So I'll have another look when I get back
I:	At home now?
P:	Yes, yes. <Erm> My son is also very interested to see
I:	<Ya>
P:	Thing like that.
I:	<Ya> Not many people bring their head of femur back.
P:	No, no. Well..
I:	This my first time to hear..
P:	The first appendix that I took out, and is a lorry driver and I was allowed to keep his appendix (Chuckle)
I:	<Mm>
P:	So I kept it in a jar for many years.
I:	<Mm> Okay.
P:	<Mm>
I:	Alright. Okay, so now that you had gone through this surgery, what do you anticipate and what are the things you want really to do? You know is part of the quality of life
P:	Well get back to travelling when I can.

I:	Okay, <ya>
P:	I mean this whole spine episode was <erm> a real shock because you are okay one day, and the world is gone by, is fallen apart with this.
I:	That's right.
P:	It's a life exchanging experience
I:	Yes.
P:	There is a lady next to me who sounds she got similar to what I had, I hope she's okay.
I:	<Mm> Spine surgery?
P:	<Mm>
I:	<Mm> <ya> But surgery itself, spine surgery does help you <ya>. So you hope...
P:	Well, unfortunately I still got the spine problem.
I:	<Mm> So you hope to go.. travel?
P:	<Yea> Yes I want to get back to...
I:	Travelling.
P:	Yes, going to visit my children.
I:	Okay. Alright. That's about it. Thanks Ms I.
Kate F7-76 Right THR 2nd Interview 7/6/12 (38th POD)	
I:	The day room <ya>, I know it was kind of a distracting down there okay, with visitors coming in and out and.. but anyway you actually really shared a lot with me and it's good that you can help me to verify the information. So for this 2nd interview and the last interview, <erm> basically the focus would be on what is your experienced the time I'd seen you till now. So basically it would be your post-op experience. Post-operative experience from the time that you were still in the hospital that was quite <ah>, the operation that was kind of.. I think was only a few days after operation that I visited you. And then from there on what the events that have happened, your experience going through this events, <ya> I think you had shared that regarding your wound and so on. But is quite a experience basically in term of coping at home, activities outside and activities that you usually go about during before the surgery, how do you cope with it, was there any change, It's just <ah> basically your experience after the surgery till today. If there is anything <er> in related in term of pre-operatively by all mean, just bring in, just don't have to focus on the.. from the time I'd seen you till now
P:	<Mm> Yes
I:	Just let it flow in
P:	Okay. I... I left hospital on the 8th day.
I:	On the 8th day
P:	<Um mm>
I:	<Ya>. That day I saw you, what day was that?
P:	Was it..
I:	It was a Sunday
P:	<O> Yes, I left on Monday.

I:	Okay. That means it was day 7 that I saw you
P:	Yes, yes <Um mm>. And that day I left, I had physiotherapy down in the gym
I:	<Mm>
P:	And they make sure that I could go up and down steps and did various exercises which I continue at home <ya>. And mainly bed exercises and moving the foot out with straight leg
I:	Bed exercises
P:	Over there various exercises that given for the hip. <Erm> It's good to get home because my daughter and her little son were here
I:	Which day that they came?
P:	<O> They had come on the Friday <erm> Saturday before the operation
I:	Okay
P:	<Erm>
I:	So they did wait throughout the surgery?
P:	<Yeah> Yes, yes. They visited me. <Erm>
I:	Which daughter is that?
P:	E., she is a daughter.
I:	Okay. That is your...?
P:	Did you say which daughter?
I:	<Ya>
P:	I didn't hear that.
I:	Because I know you have 4 children
P:	Yes
I:	So your daughter.. is it the 3rd one or 4th, the 3rd one, the 3rd child?
P:	Yes, yes
I:	Or 4th one?
P:	3rd, 3rd yes.
I:	<Ya> She's with you <yup>
P:	<Um mm>
I:	For the surgery<ya>
P:	And...
I:	You went for rehab
P:	I <ah> developed <erm> shingles on my left thigh
I:	When did that happen?
P:	<Ah> That.. that just happened before E. left.
I:	Okay.
P:	And..
I:	When did E. leave?
P:	<Hm>?
I:	When did E. leave?
P:	She left on... I don't know.. (Laughing). I get the..
I:	Diary <ya>
P:	(Chuckle)

I:	You discharged on Monday
P:	She must have left about, about the 4th, Friday, 4th 4
I:	Okay.
P:	And I went down to the <erm>.. okay, I went down to the polyclinic, Outram polyclinic because of the <erm> rash, I want to be confirmed
I:	The rash is it the shingles that you mentioned?
P:	The shingles, yes.
I:	So which day that you went down? I think that day happened that I call you
P:	Alright, yes
I:	Yes, and you said you rushing down to
P:	Yes, that's right
I:	Outram polyclinic
P:	That would be, would be Friday. Friday the 4th, I think.
I:	<Ya> That day that you went for polyclinic.
P:	<Yup> That's right. that was 11th, that <erm> May. And I was given a week of Acyclovir, an anti-viral tablets, to take 5 times a day and I was given for 10 days.
I:	<Mm> So over 10 days <ya>.
P:	<Mm>
I:	So did that clear?
P:	Yes, that cleared it. It was not a problem and it was inside the leg, thigh region. That...
I:	That the shingles goes to...another
P:	<Ya> Down there and another one up here
I:	So it's cleared now
P:	Yes it's okay.
I:	Okay. So you went down to the polyclinic mainly for the shingles?
P:	Yes.
I:	Is there anything else? Any other reason you went there? Got anything related to your wound
P:	No. But then later, <erm> I developed wound infection upper end, the wound. So I went down to polyclinic and I was given a week course of <erm> Amoxiclav which I'm just finishing, I just finished today.
I:	<Mm> So how long was the course that is given to you?
P:	One week. <Um mm>
I:	Wound infection?
P:	<Um mm>
I:	How do you know there is a wound infection?
P:	<O> When I.. it became more red and thickened,
I:	<Mm>
P:	And it haven't dry up and <erm> so I went down for my first post op <erm> appointment to see Dr H. <erm> on Tuesday...
I:	Dr H is for your surgery related hip, right?
P:	Yes, yes

I:	Okay, that was just <ah> Thursday. I thought you had first appointment somewhere Tuesday?
P:	Yes, I went on Tuesday
I:	Yes .
P:	Yes.
I:	Tuesday
P:	And he took a couple of swabs
I:	<Um mm>
P:	And some blood tests and the full blood count was normal
I:	<Mm>
P:	And still waiting for ESR
I:	<Mm>
P:	Which I should get the results of <erm> this afternoon when I going to see the registrar
I:	<Mm>
P:	And to check <erm> the wound
I:	<Mm>
P:	And then I expect them probably give me some more antibiotics or change if necessary
I:	<Mm>
P:	According to the culture. <Erm>
I:	<Mm> Sorry, just to re-cap back on the wound infection that you mentioned. So you went to the polyclinic first
P:	<Mm>
I:	For the wound infection
P:	Yes
I:	And that was somewhere I think on Friday, that week that you were discharged, <ya> Friday
P:	Yes
I:	Okay, so antibiotics was prescribed for you and after that you..
P:	Antiviral was prescribed then
I:	Antiviral
P:	Yes, Amoxiclav based. And then later I went to polyclinic again for <erm> the wound infection.
I:	<Mm>
P:	And I was given a week supply.. a week of Amoxiclav which I just finished this morning, so I see the registrar this afternoon
I:	<Mm>
P:	Because Dr H is on leave and..
I:	Okay. So you went to polyclinic 2 times so far, one for the.. they gave you Acyclovir and another one for the wound infection, Amoxiclav.
P:	Yes and I having dressing as well.
I:	<Mm>

P:	At Outram
I:	<Mm>
P:	<Mm>
I:	Is there a wound breakdown? Is there a wound breakdown?
P:	Yes.
I:	And you are having a dressing
P:	And the nurse at the poly.. at SGH told me that the wound is about 1 cm deep,
I:	<Mm> So what kind of dressing are they doing for you?
P:	At the moment I got a dry dressing but I was having Purinor, or is it Puripore?
I:	Okay. Is it to absorb the exudates?
P:	<Mm> Is sort of jelly
I:	Okay
P:	Jelly dressing. And..
I:	So you having wound being inspected and cleaned at the polyclinic?
P:	Yes, that's right.
I:	So how are you doing so far?
P:	Well it.. it was <erm> getting bigger.
I:	<Mm>
P:	<Erm> But it doesn't.. it not very painful. <Erm> It has a discharge comes through the dressing on couple occasions
I:	<Mm>
P:	But <ah> I'm not getting much trouble from it and I'm going this afternoon to see the registrar
I:	<Um mm> Okay, alright. So is there any plan that they had mentioned to you, and how they manage the wound, or it going to be dressing, and what's the plan?
P:	Well, it's interesting because the soon I went to see Dr H on Tuesday, he said "<O> we were just discussing <er> the closure of some other wounds they've been closing". And he said "Did you have suture removed?" So I said no I don't have to.
I:	<Um mm>
P:	So he said that they will..
I:	So you have no suture that need to remove?
P:	Well most suture were being removed. Now I had noted some <er> nylon whiskers <ah> in the wound when it started going septic, so I.. I got those out. They seemed to be
I:	On your own?
P:	Yes. Lying.. lying along the scar. So he said, Dr H said that <erm> they had found that it will getting infection with this particular closure
I:	Sutures?
P:	That was interesting
I:	Are the closure related to the sutures?
P:	Yes, infection related to the sutures
I:	<Mm> These are probably prolene sutures. It could be..

P:	I don't know. He did mention what they were but I couldn't remember. I can't remember what they called (Chuckle)
I:	Sutures. They are meant <ah>... it should drop off or it should dissolve on it own after some time.
P:	<Mm> That's right, yes.
I:	Okay. So were you.. other than the wound infection, is there any fever, inflammation to your wound?
P:	<Mm> I took my temperature on couple occasions and it was 37. But <ah> might a little bit feverish for me. Because I.. I normally 36. something.
I:	<Mm> Body was warm
P:	<Mm>
I:	But then how do you feel?
P:	<Erm> I lost my appetite because I felt a bit nauseated, but no headache, or no obvious fever.
I:	<Mm> Okay. So that <erm> so how do you feel with the wound infection? You, how do you feel with the wound infection?
P:	Well, it's not causing me pain, it has been itchy at times.
I:	Okay, that is with the wound okay, still in the process of healing I'm sure. You are going to see the registrar this afternoon
P:	Yes.
I:	Okay. So.. when you were going back for the time, you were still in the hospital just before discharged, you discharged on Monday, you mentioned that you have rehabilitation, right. How was your experience with the nurses and the physiotherapists, the doctors, the healthcare staff, the different healthcare staff there before that you.. before you discharged?
P:	Very good. And they all very efficient and friendly and helpful. <Mm>
I:	Okay. The nurses anything in particular?
P:	No
I:	<Um mm>
P:	No, they are very good.
I:	Okay, so is what that you would have expected?
P:	Yes
I:	Okay. How about the physiotherapists? I know you mentioned you went down to the rehabilitation on Monday. So how was the physiotherapist, physiotherapy experience? The physio experience?
P:	Very good
I:	You mentioned they make you climb up stairs
P:	Yes, yes I..
I:	You don't have to climb stairs here right, at home?
P:	<Um mm> No, nothing.
I:	<Ya> Okay <erm> what about the doctors when they discharged you? Dr H. who had seen you and I'm not sure whether was Dr H. saw you on your last day
P:	No, he didn't because he has some emergency to attend to, so I didn't see Dr H

I:	Okay. The rest of the doctor who saw you, discharged you on that day?
P:	Fine
I:	Fine, okay. Nothing in particular, anything caused of concern? Anything that you want to highlight?
P:	Well <erm> there were 2 little points.
I:	Okay.
P:	<Erm> My daughter and I had hope to continue antibiotic for longer than for 3 days
I:	<Mm> You were been given antibiotics?
P:	<Ya> Yes, pre-operatively.
I:	<Mm>
P:	And in fact that may had saved me from infection developing, have I had it.
I:	What <er> antibiotics were you given? And when did it start?
P:	<Erm> In the hospital, intravenous
I:	Okay
P:	So when the drip came down
I:	Okay, so it was given before your operation?
P:	<Ah>
I:	Can't remember.
P:	No, because I went straight down stair up to block 5
I:	Right.
P:	Up to theatre. Whether they gave me something during the operation, <erm> is quite likely
I:	<Mm>
P:	Or the end of the operation
I:	<Mm> Okay. So you find that they started you on the antibiotics, you could better remembered it was post op, post-operatively? They started on the antibiotic
P:	Yes. It was the intravenously antibiotic
I:	Okay. Can you remember what antibiotic was that?
P:	No
I:	Okay, it was I.V. <ya>. So you had it for 3 days?
P:	I think so.
I:	<Mm>
P:	I don't think they gave it to me <erm> in tablet form or capsule
I:	Okay. So you..
P:	I have so many tablets and capsules to take
I:	<Ya>
P:	It's difficult to remember
I:	Okay. So you mentioned that you had antibiotic <ah> I.V. antibiotic for 3 days, you felt that it could have given to you for a longer span right?
P:	Yes, yes I would like longer
I:	<Mm>
P:	Because I have a history.. I had pneumonia with previous operation after.

I:	<Mm>
P:	And urinary tract infections and I have mitral prolapse
I:	<Um mm>
P:	<Ah> And a device in the heart for ASD
I:	<Mm>
P:	And then plus a device
I:	There is.. there is a artificial valve there?
P:	Yes
I:	Yes.
P:	Well is to block the ASD, the atrial septum defect. So is a bit like collar stud.
I:	<Mm>
P:	One.
I:	<Mm>
P:	Put...put on side...
I:	It's the ASD, atrial septum
P:	Yes, each side of me
I:	Okay
P:	Put it together
I:	Alright
P:	<Mm>
I:	Okay.
P:	And we were a bit concern about <er> having further <erm> anti-clotting and anti-thrombosis
I:	<Mm>
P:	Clexane because
I:	Anti-coagulant
P:	Anti-coagulant yes. Because <erm> although local communities don't get so much <erm>
I:	D.V.T.
P:	Clotting...
I:	D.V.T.
P:	Yes, that's right DVT. They don't get that so often, Caucasian when we do, so we were a bit concern on that and we do welcome using Clexane for a bit longer
I:	<Um mm>
P:	And most prepared to do it at home here, it could be prescribed. But <erm> the answer was no, not necessary, so I haven't.. I didn't have it.
I:	<Um mm>
P:	But I didn't have any problem with it in that line
I:	Okay, so you actually consulted doctor <er> on this <ya>?
P:	Yes.
I:	So they advised you that is not necessary
P:	Yes < mm>
I:	I supposed with you is the mobilisation. Active mobilisation, not very active but

	you are mobilising instead of being bed ridden in hospital
P:	I would like to have it more than a week. Got to be it...
I:	Okay. However your wound infection, well is something that is unexpected
P:	Yes, unexpected. <Um mm> There are at the end of the wound always been a bit thickened and a little bit pocketed <erm> from the start.
I:	So the wound infection is more of the upper or lower?
P:	<Mm mm>
I:	Okay, so that was your wound infection. And looks like.. I mean this is a one of the possible complications of the surgery, I think you are managing it well so far
P:	<Um mm>
I:	Okay. How about your pain experience?
P:	Well <erm> I was on Morphine drip to start with and that was very helpful
I:	<Um mm> How long were you on the Morphine?
P:	Don't really know, may be 4 days or so
I:	Okay, 4 days on Morphine <ya>, with the PCA pump?
P:	Yes.
I:	<Yup> Okay, alright. So <ah> you find that Morphine drip itself <ah> Morphine analgesia given was helpful
P:	Yes
I:	<Ya> Other than Morphine, what else do you take?
P:	<O> I was given Tramadol, <erm> the Panadol with Orphenadrine.. A...what does it call..
I:	This one you find that <er> is not as potent.. as stronger as compared to Tramadol. But that is the one prescribed for you
P:	<Mm>
I:	<Ya> So you took <ah>.. you had Morphine and you have this Orphenadrine <ya>
P:	Yes. Was given Tramadol
I:	Okay
P:	And also because I have neurogenic pain from my earlier spinal problems and neuropathic
P:	No, I don't seem to have any effects with any of the medications
I:	Medication, that's good. <Ah> How much Lyrica do you take? What is the dosage?
P:	<Mm> 1..1.., 75mg
I:	75mg.
P:	But I have been prescribed 75 BD.
I:	<Hm> So do you take BD?
P:	I'm not taking BD, no. I think I might to
I:	<Mm>
P:	Because I get quite severe pain in back of my right thigh
I:	<Um mm>
P:	<Ah> Which can occur pretty much anytime

I:	<Mm>
P:	And it's really is quite.. quite painful
I:	Okay. So do you...
P:	Sometimes it also goes down to the left leg
I:	Leg left
P:	<Ah> I.. I think it is from the spine, the operation.
I:	<Mm> Okay. So therefore <ah> Gabapentin you're taking is unrelated to the knee is more for the spine
P:	I'm not taking Gabapentin, I'm taking Lyrica
I:	Okay, sorry. You have changed <ah> Gabapentin you changed to Lyrica now right yes
P:	<Mm>
I:	<Ya> So for now you're taking Lyrica more so related to your spine problem rather than the hip
P:	Yes, yes. I have had this <erm> neuropathic pain <ah> since the spinal operation in March 2011.
I:	<Mm> But in relation to the <ah> analgesia that you take <ah> for your hip surgery, hip surgery, mainly what analgesic that you're taking? The pain from the hip, I know you mentioned you have pain because as patient when you encounter pain you know, you can't say from here I take analgesia just for pain and from here analgesia for another site as an example. But do you find that you coping with the pain mainly from your spine or mainly from your hip related surgery?
P:	The hip is not giving me very much pain. And when I first get up from bed and I am not supposed to put weight bearing on it, I'm aware of my hip pain then wears off. The moment that I sit here and I got a bit of like 'go background' pain there, which is not severe.
I:	<Um mm>
P:	It's okay.
I:	Okay, alright. So <erm> looks like the hip itself you're.. you have progressing well, you did?
P:	Certainly I don't have the pain as the osteoarthritis but I had pre-operatively and towards the end the of my time before the operation, <erm> I was getting noises coming from my hip which sounded to me like 'pebbles' on my back, high pitch
I:	<Mm>
P:	<Ah> Anyway those.. those noises have gone
I:	<Mm> What kind of noise was it? Was it rubbing or was it rubbing against bone to bone? 'Pebbles'?
P:	Like stones
I:	<Ya> What do you think that that causes that sound?
P:	Well, I imagine it rubbing surfaces In the joint- acetabulum and the head of femur. Sounded like 'crack, crack, crack' - sort of clicking, clicking together
I:	Okay, alright.
P:	Only a slight movement and I can hear it

I:	<Mm> What when you're sitting down? What when you are sitting down, and your hip is moving, can you hear that?
P:	No, is the moment I was walking
I:	Okay
P:	Walk up.. upright
I:	So is that fine now?
P:	Yes, is gone
I:	Okay. So <er> the pain-killer is mainly Lyrica,
P:	Well, I.. I haven't been taking everyday because I was getting a bit low on it. But now I (chuckle) I discovered the prescription that was given to me by the pain management for more, so I shall get some more this afternoon
I:	<Mm>
P:	And I think that the experimental I probably go back to the 1 Lyrica 75mg BD to see effect to get rid neuropathic pain see it stops
I:	<Mm>
P:	But they are expensive these capsules, so I hope that I can get off them. Gabapentin itself is expensive too
I:	Okay, so you have shared your pain experience, people and your wound. Now moving on to when you came back itself, okay <erm> the activities that you do. Did you go back to those activities?
P:	I haven't resume my social activities really
I:	When you say social activities, you mean?
P:	Well, <erm> going out to shops
P:	No not really. No. Sometimes you need to go and buy stationary supply
I:	All necessities
P:	Cold Storage to see and choose things. So I'd been to Cold Storage may be 3 or 4 time to Centre Point.
I:	<Mm>
P:	<Ah ah> Have to think carefully about where are the stairs, where are the lifts because of my rollator. Right
I:	Yes
P:	I..
I:	You travelled with your rollator?
P:	Yes, that's right. Folds up and goes to the back of the taxi. And I find this very useful. When I get tired, I put the brakes on and sit down for a few minutes.
I:	<Ya> So at home <erm> do you use the walking stick? Do you use the walking stick?
P:	Yes, sometimes. <Er> I.. I use either the walking stick or this
I:	Rollator
P:	Combination of both
I:	Okay, combination of both
P:	<Ya> Because I.. I go for longer distance with this. Where or when go and between furniture or something, then I use the stick

I:	Okay. Just now when I came up where at the security, I went through the door, I was looking for the lift
P:	Yes, there isn't any lift on the ground floor
P:	Yes it's a crazy design, isn't it?
I:	It's not so <erm> friendly, elder friendly
P:	I can do that
I:	Okay. How do you travel alone?
P:	By taxi
I:	<Ya> Okay
P:	My children have said you mustn't take buses and MRT because they only have to pull up the brakes sharp, everybody falls down and that the last thing I want to do, falls
I:	Yes. You find that it safer to travel by taxi
P:	<Um mm>
P:	<O> No, no. I haven't been able to go any concerts, so.. I have been round a lot gallery because a friend pushed the wheelchair round with me because <ah> some of the museum do have wheelchair which you can borrow so which is good
I:	There are gallery but not as many as you will find in England <ya>.
P:	There are many good gallery and museum here
I:	There are?
P:	Yes
I:	Which are the one that you've been?
P:	<Erm> The National Museum
I:	<Mm>
P:	Asian Civilisation, Peranakan
I:	<Mm> <Ya> Your maid goes along with you then?
P:	Yes
I:	Peranakan, okay you've been to Peranakan <ya>
P:	<Mm>
I:	So <er> you very much would like to go for more concerts
P:	I like to go to concert. Before I can, I got to find out about wheelchair access because I.. I won't sitting <wheelchair> the performance but I have to park it somewhere and sit on the normal seat
I:	<Mm>
P:	So I haven't really make enquires about feasibility of going to concert over theatre
I:	I think places like Esplanade they hold many concerts
P:	<Mm>
I:	Have you been to the Esplanade?
P:	Not since <erm>.. not since
I:	Since you have this problem
P:	2010
I:	2010, okay.
P:	(Chuckle)

I:	<Ya> May be it's good to really explore if they have there. I think there is but I'm not sure, I'm not sure. Because I've been.. I mean I've been to concert for many times but I've not seen people going on wheelchair but they could have change
P:	<Mm>
I:	To have more flexibility <ya>
P:	I went with a friend to Lido cinema
I:	<Um mm>
P:	To see a film a week or so ago
I:	Okay, that's great
P:	And she had recce the place the day before and found out the lifts were and post**s** quite high before you get to the cinema and so she found out to take the lift and change to fireman's lift to next floor
I:	okay
P:	<Erm> But actually when we got there, there were lots of long long corridors and then you turn right angular, another long one I felt I don't quite like to do a lot of walking (chuckle). By the time I got there, but we already booked to sitting in the front row. Park this <sigh>
I:	Okay. So you went about with your rollator and your walking stick
P:	Yes
I:	<Mm> Okay. So you did.. did not, I mean you didn't require to <ah> didn't use wheelchair, you actually moved with the rollator
P:	Yes
I:	That's good I mean that is your mobility
P:	I've done it, I've done it once. So I know that place now
I:	Okay, alright. You have recce the area
P:	That's right. Yes
I:	Okay. <Erm> So in term of the.. what would you have expect or what would you to have preferred the kind of social life that you were really want back after the surgery? What do you.. <ah> what would your expectations? And what would you looking out for your expectations?
P:	Now? For the future?
I:	Yes
P:	Now I will be able to.. to go walk around more
I:	<Mm>
P:	Without getting tired
I:	<Um mm>
P:	<Ah> And I want.. I haven't been able to go to Europe last year, all this I don't. can't go to Europe this year either
I:	You plan to go to Europe?
P:	I, I usually go to see the families <erm> in the summer
I:	<Mm>
P:	But I haven't been able, I didn't think I should able to this year
I:	<Um mm>

P:	And..
I:	The reason?
P:	Well
I:	Because of your physical state?
P:	Yes, <yeah> the physical state because <erm> going to Europe I don't have a car, and you have to get on trains, and sometimes steps are very high
I:	Okay, so you find that the restrictions<er> to your mobility that you find that you are not ready to travel as yet
P:	Yes
I:	Okay, but do you hope <er> to do that in
P:	Next year
I:	Next year. So it's planned next year
P:	Yes
I:	Aim to travel more <ya>
P:	Yes, yes.
I:	Aim to travel more with improved mobility <ya>
P:	Yes, yes.
I:	So how do you find your quality of life at this stage?
P:	Restricted
I:	Restricted
P:	Yes. This is not because of the hip, this is really a continuation of my <er> spinal surgery
I:	So you think if that is unrelated, if there is no spinal related problem, it was just hip, you would have able to have a bit more mobile, less restricted?
P:	Yes, yes
I:	It's because of the...
P:	Even so you see, <erm> I'm very scare of dislocating and you have to <erm> take precaution not to do certain movements <erm>
I:	When you said do certain movements, what kind of movement is that you beware and you...?
P:	Well you're not allow to cross your legs, cross your angles, your legs should not go over the mid-line
I:	<Mm>
P:	And shouldn't internally rotate
I:	Okay, alright. What about when you go out right now, how do you see people <er> looking at you, the way you move, are you aware of how other see you
P:	(Silence)
I:	I think I did ask you the last time
P:	Yes, you have the last time
I:	I'm not sure at this stage right now
P:	<Mm>
I:	Just to revisit this question, how do you see how other see you, are you aware of people see you

P:	Yes, <ah> I'm... I am aware that what people noticed somebody is taking up more room or willing <er> <er> or something
I:	<Yup> okay
P:	My rollator
I:	Okay. How do you feel?
P:	Well I have to be careful not to bang into them, they... have not to get in front (Chuckle)
I:	The space, the space that you would be good to move around
P:	Yes
I:	Okay, other than that? Is more of the space that you don't bang into others and others don't bang into you, the awareness. But how do you feel the day <erm> is there any... <erm> how do you feel people look at you?
P:	Well with some sympathy. I usually smile at people and they smile back
I:	Okay, alright. In term of your.. the last time you shared that.. that you used to be a Christian, then you moved more to..
P:	Well I still am
I:	And now you have taken up, moving to meditation or Buddhism?
P:	Well I'm interested in meditation and Medicine Buddha
I:	<Ya> The last time because I want to revisit it just want to understand better because you are a Christian and you have moved also to Buddhism. So how do you find with this <erm> mixed with Buddhism and Christianity, how does it help you in your faith, and in your recovery and in your outlook of life
P:	<O> I think it's prayer is strengthening
I:	But you said prayer is it particularly Christianity or others
P:	God
I:	Okay. As being an universal, as an universal figure
P:	<Mm>
I:	Regardless of <er> which religion
P:	Well yes I.. I think that <erm> all religions ultimately lead to the same God
I:	<Mm>
P:	And home
I:	Okay, so are you taken up more Buddhism? The reason why you taken up more Buddhism? More Buddhism, meditation, you find they help you?
P:	Yes, <erm> I haven't done much I have to admit but <erm> what I do, what I read is very good, interesting.
I:	<Um mm> Does that helped you in term of <er> outlook of life, in health?
P:	Yes
I:	<Ya> How do you, how is that help you? How do you find the faith and religion that help you?
P:	Well I.. I feel there is a.. a presence <erm> helping me, sort..
I:	What?
P:	Helping.
I:	Okay.

P:	And strengthening me in mind
I:	<Um mm> Alright, in term of the <ah> your mental health, it something like faith given you strength to pursue on
P:	Yes
I:	Alright, <erm> other than that? Do you go to church still?
P:	Well, <erm> I like going church but unfortunately it's difficult to go because S and S.Y both go off to church in the morning on Sundays, and I need somebody to be with me so I, I practise my religious pursuits at home.
I:	Okay
P:	I like a good sermon (laughing) and I miss that
I:	You very much preferred to go to church
P:	Yes
I:	<Ya> It's just that you will need help
P:	Yes
I:	<Ya> Okay.
P:	It's her day off you see
I:	And you repect that
P:	Yes
I:	She goes out every Sunday?
P:	Yes
I:	Okay. She goes to Catholic church?
P:	Yes, she goes to Novena
I:	<Ya> This is very near here <ya>
P:	Yes
I:	So <ya> even as an employer I think she has been with you for 14 years
P:	<O> yes
I:	I mean I used to have maid too.
P:	<Mm> <Mm>
I:	Okay, <erm> that's your religion and your cult... what about your culture itself your culture, your very as a.. as a Westerner, how do you feel that the.. how your culture has contributed to your.. related in your recovery the way you see things? Okay, your western influences. Have you try...
P:	Well I think that comes more from the religion, spiritually aspect really
I:	Okay
P:	But I like classical music very much
I:	Okay
P:	And I listened a lot of that on the radio here
I:	<Mm>
P:	<Erm> I'm also interested in lot sort of things and the BBC world service supply lots of that. I do past lot of reading, I like to read the newspaper pretty thoroughly and I get books out from the library and..
I:	You are a big reader
P:	Yes

I:	And so you go to the library and borrow books, which library did you go? National library?
P:	Club library
I:	Club library?
P:	<Mm>
I:	You have a club?
P:	<Mm>
I:	<Mm> Okay. We have very good libraries here
P:	<Mm> Yes, yes, yes. I.. I.. but I never felt the need to go farther than..
I:	Okay. The club library
P:	<Um mm>
I:	You find is sufficient
P:	And I've got so many books here that I being bind for years to read when I retired but now I've retired (Chuckle), I still haven't read them all yet <mm>
I:	<Mm> So how you occupy your time? I understand that you have stopped working, how do you really occupy your time? <Ya> Other than shops, reading books
P:	I also watch television in the evening and I.. I read, I have a computer
I:	Very much
P:	So do that a bit
I:	So you email, you communicate with your children?
P:	Yes
I:	<Ya>
P:	And we've got skype as well, everybody goggle skype
I:	<Um mm>
P:	Which is great everybody don't know your ID. Keeping in... keeping in contact which is very good.
I:	<Ya> <Yup>
P:	Seeing how grandchildren are, progressing and their speech, vocabulary, knowledge and songs
I:	<Mm> How many grandchildren?
P:	I've got 8
I:	<Wow> Okay
P:	And E. is expected in January
I:	<Wow> Okay.
P:	<Mm>
I:	Alright, that's great, that's great
P:	<Mm>
I:	So is good to go back home and catch up with their progressing
P:	Yes, yes.
I:	Do you find that you're back home <erm>, is there high dependency on your care-giver?
P:	Yes, Because I'm not supposed to <erm>, they said reach below your knees, so I

	use a grabber to help
I:	To grab things
P:	<Mm>
I:	Okay.
P:	Yes. But when it come to put shoes on and sandals, it's easy she can do it for me. And also, helps.. she helps me to put on brassiere, which is easier fix two people doing it
I:	<Mm>
P:	Rather than one
I:	Right. I think the last time in the hospital you actually put up on your own
P:	Yes
I:	<Ya>
P:	I can put it on.
I:	Okay, so you find that <ah> you definitely need someone okay, it's necessary
P:	<Mm> And she helped me bathing as well.
I:	At this juncture? At this juncture? At this period?
P:	Yes, yes. <Mm>
I:	<Ya> Okay. You find that you really can't do it on your own as yet?
P:	Reaching behind is a bit limiting sometimes. And cleaning my legs and feet so on..
I:	Okay, so you find that you need help?
P:	Yes, yes.
I:	So therefore, you said required help like in bathing..
P:	Bathing and dressing
I:	<Ya> Dressing, dressing wise.
P:	<Mm mm>
I:	How about your toileting then? Toileting ?
P:	Toileting I'm okay. I can do that myself, thank goodness. (Chuckle)
I:	(Chuckle) <Ya> Because I'm not sure to what extend that you would need help. But she is good that she knows you so well
P:	Yes, yes.
I:	She understands your needs
P:	<Mm> She is capable, she anticipates what I need as well
I:	<Mm>
P:	Yes, I'm very lucky to have her
I:	Yes. Okay, alright. Is there anything else? I think more or less we have covered but I'm not sure anything else that you like to add on which I may have missed out asking you in relation to your peri-operative experience? Any concern?
P:	<Erm> Well I.. I was concern at first that I.. I make sure they are going to give a urinary catheter because I.. I can't
I:	Pass urine
P:	Use bed pan
I:	So you requested for that? Post-op?

P:	Yes, I did.
I:	Okay.
P:	So I was told usually and put it in anyway
I:	Okay
P:	Which is good. They wanted to get rid of it a bit sooner than I hope.
I:	Yes
P:	But anyway I tried but the catheter was taken out later in the day, I mean if you want to take out the catheter the obvious time to do it, is morning
I:	<Mm>
P:	So that you've got plenty of hours in which to start passing urine again.
I:	<Mm> So that is taken out in the morning, you can drink lots of water
P:	Yes
I:	You can pass in the afternoon
P:	Yes. Well anyway I couldn't go. So <erm>
I:	You couldn't go after the catheter was taken out?
P:	No
I:	<Ya>
P:	So <erm> they put it back again
I:	<Mm>
P:	I have put in for another couple days or so and I was okay fortunately
I:	You had bladder retention?
P:	<Ya> Yes, the other thing they didn't given me long enough and I haven't been drinking so on long enough. When they wanted to find out you know
I:	If you have pass urine
P:	If I have pass urine or not, I haven't
I:	Hardly been drinking
P:	<Mm>
I:	Okay
P:	I haven't pass urine
I:	Okay. So you asked for more fluid? To try again?
P:	<O> Well I have the catheter put back in
I:	Soon after
P:	That night
I:	Okay, that night
P:	<Mm>
I:	I think I visited you on that day, was a Sunday, that was.. that was already taken out. Taken out.. that day
P:	<O> Yes. That's right. And that.. that was 2nd time the catheter was taken out. But I know my body pretty well.
I:	Yes
P:	And I wouldn't take the catheter to be taken out as early as they did
I:	<Mm> Did you try to discuss with the staff on this?
P:	Well yes, yes. And

I:	So how did they <ah>..
P:	Well I.. I got quite upset because I knew if only they given me longer <erm> or to pass urine after taken the catheter out, or else to <ah> just keep the catheter, let me keep it in for another couple of days or so, it would have been better
I:	Probably their concern that the tendency on the.. with the catheter and giving you time for.. to adapt before you get discharged
P:	<Mm>
I:	It could be, I mean that there could be some of the reasons there <ya> <yup> .I think drinking more water will help and giving you more time
P:	But <ah> for goodness sake taking the urinary catheter out after in the morning, give the patient the chance
I:	<Ya>
P:	Because <er>obviously they don't want people <erm> leaving catheter for the night staff, so they want get it.. <er> they got limited time I supposed.
I:	<Ya> They have less staff definitely at night. I think it's ridiculous to take it out in the evening or afternoon. It too late if you're going to take it out, take it out in the morning
I:	<Ya> Okay. I mean I agree with you <ah> patient needs time to drink water and then to process for it
P:	<Mm>
I:	Urine to produce <ya>
P:	Yes, because you have not been drinking water, passing urine a degree of retention
I:	<Ya>
P:	You have to be able relax (chuckle)
I:	Yes
P:	And the other thing process that <erm> I had some coital inguinal problems <erm> 3 years before with my spinal unfortunately I didn't have incontinence either way but had been slight difficult to had a <er>... start the onset of urination
I:	It takes a longer time
P:	Yes yes
I:	So that with that problem, so therefore you need a bit more time. That's why I say you.. you know your body best
P:	So may be he (medical staff) is quite new, and just say <O> catheter out, so the nurse came around and pull it out
I:	Okay, so you find that the nurses follow the instructions?
P:	They followed his instructions
I:	Good feedback so that healthcare workers will need to collaborate with the patients in order to help in the recovery.
P:	<Erm> More than once, because I know my tablets pretty well, I have been given wrong dosage.
I:	<O> Did you not highlight that?
P:	I.. I told them and I said I mean last year, I still on <erm> my Metformin tablet,

	and I'm on only half, I took only half a tablet at a time, but it was a half of a 250mg tablet.
I:	Yours is usually half of a..?
P:	250mg, I took 125mg
I:	Okay.
P:	And <erm> I found they have given me half of 250mg tablet
I:	So that is 125
P:	Yes
I:	125 but what you normally take is half
P:	They gave me, they gave me wait a minute, they gave me 500mg tablet half.
I:	That is 250
P:	So is 250. My normal dose is 125 which is half of 250 tablet. But I don't
I:	Did you highlight to them?
P:	<Hm>?
I:	Did you highlight to them?
P:	<Ya> <Ya> I said this is.. this is wrong
I:	Unusual
P:	Yes. This is double of a dose
I:	They change for you? They change for you?
P:	Yes. <O> Yes.
I:	<Ya> How many time is that? How many time is that? The wrong?
P:	<O> Only once with that. But I had even this time there were mistakes. <O> One time anyway. Even this morning I've taken 12 tablets
I:	So when you gave feedback on the dosage itself, how was the reaction? How did they handle?
P:	<O> They said thank you very much
I:	<Ya>
P:	For pointing it out
I:	<Ya> Okay. Any other thing that you like to share?
P:	I don't think anything at the moment. There is
I:	<Ya>
P:	One little comment
I:	Yes
P:	<Er> That for B2 patients, <er> there is no <erm> western choice
I:	<Orr> There was not.. you have no choice on western diet?
P:	I have the choice for Chinese and Malay. And so I found that I was having Muslim Halal food which.. which is nice. I think I must have requested it last August when I had the hernia repair. I think the food improved over the years
P:	Thank goodness I am because the expenses is terrible because I got no insurance or any kind
I:	<Mm> How was the <ah> what was the cost of surgery?
P:	Well if you really want to know, I can go and look it out
I:	Roughly? As a B2

P:	<O> This.. this time is <erm> just done 10 thousands. And I.. I was only in for a week
I:	<Mm>
P:	Fortunately. Before I was in SGH and Alexandra 46 days all together
I:	<Mm> Alexandra hospital?
P:	Yes. That.. that where B2 people go for rehabilitation
I:	Okay, alright <O> SGH you went to Alexandra?
P:	Yes
I:	Okay, for rehabilitation.
P:	No, I haven't live in England since 1963
I:	Is a different healthcare system
P:	<Mm> I..I don't as a.. I'm as a PR here
I:	<Mm> Yes
P:	And I don't qualify for any care in England
I:	<O> But you're British..
P:	British subject, yes
I:	<Ya>
P:	But <erm> I haven't been contribute to taxes.
I:	Okay. In taxes?
P:	In taxes that sort of thing
I:	Because you contributed taxes you will not be
P:	Well I'm not a, I'm not resident there. If I'm resident
I:	Okay
P:	In.. in England, I would got it free I think.
I:	<Mm> Okay.
P:	Yes. So I'm so grateful that I am B2 because the expenses are terrible. When I.. this is all coming out from saving
I:	<Mm> You find your children's help in finance?
P:	No, no.
I:	You didn't.. you didn't want to?
P:	<Mm> Well they got their own.. they got their children and the school fees and <erm>..
I:	<Ya>
P:	Mortgages on houses that sort of things.
I:	<Ya> Is different?
P:	So no no, I have no assistance from my children
I:	So is out from your own saving
P:	<Mm> Yes. See my husband didn't believe in going for health insurance unfortunately
I:	<Mm>
P:	<Erm> Because in Hong Kong where we lived, I was a government health medical officer, and so we all got medical care free

Appendix 5.3: Summary of perioperative experience of participant Leng MC3-83, Right Total Knee Replacement

Background

Leng, an 83 year-old, Chinese male, retired aircraft engineer with a degree qualification was the third participant for this study. He lived in a landed property with his wife, son, daughter-in-law, two grandsons, a maid and 1 dog. His wife, the main caregiver was 82 years old. His son was a radiologist at a restructured hospital. He had a vivid memory of his recent Right Total Knee Replacement (Right TKR) experience.

Medical Condition

He was diagnosed with Type II Diabetes Mellitus and right knee osteoarthritis eight years ago. He underwent haemorrhoidectomy during his twenties and Right TKR on the 21st March, 2012 (under regional anaesthesia). The waiting time for Right TKR was one month.

Medications

He was placed on Oral Analgesia Panadol, Tramadol and Arcoxia after surgery under Regional Anaesthesia.

Discharge and Interview

Leng was discharged home on the fourth postoperative day with a walking frame. He was using a walking stick only during the first interview. The first interview was held on fifth postoperative day and the second interview on 31st postoperative day. Both interviews were held at the comfort of his home.

Environmental factors

Delivery system design

In the delivery system design, Leng visited various health facilities in meeting up with the different healthcare professionals for each part of his encounters during

the perioperative journey. During the preoperative period, he underwent preoperative visits in the hospital as part of surgical preparation of an elective patient. He found the waiting time or intervals of each encounter in the hospital to be too long and tiring as he was in the hospital from morning till afternoon during the routine of preoperative visits. However, he was glad that the anaesthetist took time to explain the options of anaesthesia to him which gave him more information in deciding on regional anaesthesia eventually. Postoperatively, he could recall the caring Filipino nurse who nursed him at the recovery area. He was alert during the immediate postoperative period. He was appreciative of the services of doctors, nurses, pharmacists and physiotherapists in ensuring a smooth transition and coordinated care during the rehabilitation period. The interdisciplinary coordination of the healthcare professionals facilitated a continuity of care in a seamless fashion. He found the physiotherapists to be accommodating and encouraging during his two-weekly physiotherapy sessions. Leng was actively involved during the regular and scheduled physiotherapy sessions at the hospital. Upon discharge, Leng was focused and disciplined in following up with the exercise regime at home as he was keen to regain his mobility. He knew that regular exercise was a crucial component of recovery and he was clear that there should be no compromise on that. He also attributed poor surgical outcome of his friends and acquaintances to a likelihood of non-participation of exercises. There were no follow-ups calls from the nurses in checking on his progress after discharge except for receiving a nurse call from the hospital asking him if he had left his cold pack in the hospital. The postoperative visits were focused mainly on follow up medical consultations and physiotherapy sessions. He was not expecting any follow up from the hospital during the period of recovery.

Decision support

Leng was happy with the care by formal carers in lending him pertinent information, assessing his knee condition and medical advice, which informed him on the urgent need to undergo surgery. The trust that he placed on the doctors

(surgeons) for a successful outcome of surgery gave him needed reassurance and confidence in undergoing surgery, a difficult decision which took about four years before coming to a final decision. In addition, the anaesthetist who reviewed him during the preoperative assessment, took time to explain the options of anaesthesia and this enabled his decision on regional anaesthesia for the current surgery.

Community resources

In relation to community resources, Leng appreciated the invaluable support from his informal carers such as spouses, son and daughter-in-law in supporting his activities of daily living and rehabilitation. In particular, he made special mention of his spouse as the main caregiver who cautiously planned, facilitated the mobility and adaptation at home after surgery. Since he stayed in a double-storey house, his room was moved downstairs to enable easy access to facilities and ease of movement. The spouse assisted him the bathing and ensured his comfort during his recovery at home.

Self-management support

Mental adjustment

Leng underwent a constant mental transition undergoing TKR as he faced thoughts of doubts, fear and apprehension from the onset of osteoarthritis into the preoperative period before making a final decision to undergo surgery. With the decision to undergo surgery, he looked forward to getting back into his usual activities with his spouse, family members and friends. As he approached the surgery, he was anxious that he may not be able to undergo surgery due to Type II Diabetes which may not be under control. In addition, he was fearful that he may not be able to bear the postoperative pain as he had low pain threshold. During the surgery, he could hear the ‘hammering’ sounds though he was sedated. When he opened his eyes, he noticed bright lights at the top and a big television screen. He continued to shut his eyes to obviate his visualisations to reduce any apprehension. He was glad that he could manage his postoperative pain. Leng was glad to have

made the decision to undergo surgery as he is grateful for his new leg as he looked forward to spending more time in his usual activities.

Social Adjustment

Preoperatively, the experience of debilitating pain and disability, made him avoid travel abroad and going out for dinners with family members as it caused inconvenience to his family and himself. He preferred staying at home to tend his garden. Even then, he had difficulty bending and squatting during gardening. He also stopped the dance classes with his wife and all this social adjustment led to restriction of his life activities. After the surgery, he looked forward to travelling again. He decided to join his family for a ship cruise about a month after surgery as he felt that he would not need to move too much in a cruise and moving around would be easier. He wanted to regain his life of travels and start dancing again with his wife so that they could be partners in social activities once more.

Coping

During the preoperative period, Leng coped with the debilitating pain and disability during his holidays abroad with the family members by investing into different sizes of wheelchair to facilitate travelling but found it very inconvenient. He eventually stopped travelling. Since his retirement about thirty years ago, he mainly monitored his and family's investments at home to maintain his finances. Since he did not take on any medical insurance, Leng bore the medical expenses of surgery through his own finances gained over investments. Leng gathered information from various sources to inform him on the prospects of undergoing surgery. Such information gave him mixed feelings as it had both positive and negative influences. Friends who were successful in their outcome of surgery encouraged him but those who did not fared so well, discouraged him instead. However, he concluded that every individual would face a different experience and eventually decided on the surgery.

Personal factors

Personal beliefs

In relation to self-image, Leng was unperturbed with the stares on his gait, limping appearance that he received in the public places as he would continue to use the wheelchair or walking stick so long as he needed it. He felt that he did not owe anyone anything and there was nothing to be embarrassed over his disabled condition in the public areas.

Leng, actively sought various information sources to help him cope with condition and deliberate on surgery. He suffered severe osteoarthritis for four years prior to the decision to undergo surgery as it had been a difficult decision for him. He attended public lectures and talks on knee surgery to gather information on the surgery and the type of prosthesis. He received differing information from his club members and therefore, had mixed feelings. Some club members were positive and encouraging but some told him to decide on his own as they did not recover just as well after the surgery and were still using a walking stick six months after surgery. Furthermore, the ‘karang guni’ (person who goes from house to house to collect unwanted stuff) discouraged him from proceeding with the surgery as he did not recover well after surgery. Eventually, Leng felt that each individual would encounter a different experience undergoing joint replacement surgery. He was positive and focused on regaining his life after surgery.

Leng experienced constipation after the surgery but was relieved with the fleet enema during hospitalisation and at home. He was surprised with the presence of bruising on the knee of operated leg. He applied the cold compress regularly to relieve swelling on right knee when he was at home. Otherwise, Leng did not experience any major problems related to surgery. He managed his postoperative situation well and positively.

Leng testified that he needed more time to pace up with the exercise regime instructed by the physiotherapists. He felt that he did not have adequate time in between the instructed sessions to perform the stipulated exercises. He found the

sessions challenging as he had to tolerate with the pain and expectations. However, he found the physiotherapists helpful and professional in taking him through the sessions. He paced up the exercises according to the possibilities and limitations of his recovering body. Leng preferred the sessions to be held at three weeks rather than the current two weeks as it did not give him enough time to work on them at home.

Leng received strong and invaluable support from his spouse, son and daughter-in-law during the postoperative period. In particular, he valued the support from his spouse as she understood his disposition better. He preferred not to be handled by his two home helpers as they were newly employed. However, he strived to regain independence to avoid placing a heavy burden on his spouse.

He had a positive perception of his postoperative encounter and successful surgery. He proceeded to encourage his friends to undergo similar surgery and not to delay further so that they could enjoy a better life after that.

Cultural beliefs

Leng attempted to consult a Chinese doctor, a bone setter after a recommendation from a friend but was informed by the Chinese doctor that his leg condition was beyond repair of any bone setting. Leng tried several topical applications such as TGF (has component of glucosamine) cream, Yoko rubs, Glucosamine Chondroitin capsules to seek relief for his pain. He also took on the consumption of Ginseng or herbal remedies to improve his leg condition. He was disappointed that the topical applications, supplements and consumption of herbal remedies only provided temporal relief.

He shared that he was a brought up as a Methodist Christian in his family but had left ‘God’ for a long time since he is now a Free Mason or free thinker. However, he attempted to return to church at the age of 82 when his condition of osteoarthritis worsened. He prayed for less pain and getting the right doctor to perform his surgery. He sensed that God was drawing further from him as he grew older. He needed to feel the faith and spiritual strength for reassurance and

confidence undergoing surgery. He also held a belief on ‘karma’ where one’s recovery would be possible through the accumulated good deeds.

Appendix 5.4 Summary of perioperative experience of participant Kate FS7-76 Right Total Hip Replacement

Background

Kate, a 76 year-old widow, Caucasian female, retired anaesthetist with a medical degree is the seventh participant for this study. She was born in England and attended medical school there. She lived in a private apartment with her maid of 14 years. She migrated to Singapore fourteen years ago since her husband worked in Singapore. Her spouse passed away eight years ago. All her four children (three daughters and one son) were married and stayed in England. One of daughters is a medical doctor. She had a vivid memory of her Right Total Hip replacement surgery. During the first interview, she was waiting for assistance from the nurse to get out of bed in preparation for the interview. The waiting time for Right Total Hip replacement was two months.

Medical Condition

She is diagnosed with right hip osteoarthritis a year ago. She experienced Right hip pain intermittently 3 years ago. Got worse 6 mths ago. Had not been able to get around the house

She underwent several surgeries: decompression laminectomy a year ago, repair of incisional hernia five years ago, Dilatation and Curretage for Uterine fibroids ten years ago and nasal septoplasty 11 years ago and four Lower Segment Caesarian Sections in various countries.

Medications

Kate takes Etoricoxib and Gabapentin but her prescription was replaced with Pregabalin. On finding that Pregabalin was costlier than Gabapentin, she tried to finish her stock of Gabapentin first. She was on Patient Controlled Analgesia - Morphine after surgery under Regional Anaesthesia.

Discharge and Interview

She was discharged home on eight postoperative day. She used her rollator to move around during both interviews. The first interview was held on sixth postoperative day at hospital Day Room and the second interview on 38th postoperative day at home.

Environmental factors

Delivery system design

In the delivery system design, Kate visited various health facilities in meeting up with the different healthcare professionals for each part of her encounters during the perioperative journey. During the preoperative period, she underwent preoperative visits in the hospital as part of surgical preparation of an elective patient. She found the encounters to be exhausting as she was required to move to different facilities within the hospital to complete her preoperative visits. Kate was critical of how the doctors and nurses treated her urinary tract infection. As a former anaesthetist and doctor, she felt that she should be treated with an extended period of antibiotics to eliminate her urinary tract infection. She knew her body better as she also experienced urinary tract infection during her last spine surgery one year ago. She also emphasised that nurses should question and not be merely following doctors' orders of removing her urinary catheter in the evening as she was likely to drink less water in the evening and therefore, less urge to urinate. Having been through various surgeries, she was familiar of the hospital routines and active participant of the exercise regime. She attempted to move herself to the toilet with her rollator with the nurses' assistance. Her maid consistently supported her in the mornings during her course of hospitalisation. There were no follow up calls from the hospital to check on her progress and she had not expected any follow up either. She goes directly to the polyclinic whenever she encounters any health related problem.

Decision support

After a discussion with the anaesthetist, she decided on general anaesthesia as she did not want the awareness of the surroundings and sounds of saw, tapping and

knocking during the surgery which would be an exhausting experience for her. In her past surgeries, she had not undergone a regional anaesthesia before. Kate felt calm at the induction room of the operating theatre as she placed her trust on the familiar anaesthetist who also attended to her during her last spinal surgery. She recalled that the nurse working at the recovery area asking her to breathe more other than giving her instructions to press the Patient controlled anaesthesia – morphine every 5 minutes whenever she felt the pain.

Community resources

Her maid of 14 years had rendered consistent support to her for many years. She was thankful that her third daughter, a medical doctor, visited her during her recent hospitalisation. She received regular visits from her four children who stayed in England. In her social circle of friends, she received support from friends through chanting and prayers in coping with her pain and disability of hip osteoarthritis.

Self-management support

Mental adjustment

Kate felt that the antibiotics that she had postoperatively could have been given over three days to prevent the wound infection. In addition, she felt that the nurses should not have just followed the doctor's order to remove her urinary catheter in the evening since there was less water consumption at night. She testified that she knew her body best.

Social adjustment

Since experiencing the spine and hip problem, her life revolved mainly on shuttling to physiotherapy and outpatient visits other than being confined at home. Her favourite social activities such as attending concerts and visiting galleries became rare and resorted to listening to music via the radio and watching television at home instead. It had been a long while that she was feeling odd and getting glances in the sea of others, moving around with her rollator with her odd

walking gait that she no longer felt conscious about self-image in the public areas. After her surgery, she hoped to start travelling to visit her children in England again. A friend brought her to the art gallery where wheelchairs were provided. Another visit to the cinema on a wheelchair with a friend proved cumbersome and time-consuming to get around. It became a necessity to consider the stairs and lift landings to facilitate her mobility using rollator and walking stick during her trips to supermarkets and social outings. She hoped that she was able to walk around without feeling tired and remembering not to cross her legs or even internally rotated her operated hip to prevent dislocation. She stressed that her children reminded her not to use buses or mass rapid transit (MRT) to prevent any falls in the public areas.

Coping

Kate's hip condition worsened about three to six months ago. She experienced pain on her right thigh when sitting at the wash basin. She suspected that there could be a connection between the pain on her right thigh to her spinal problem. The clicking and cracking sounds from her hip seemed like a bag of moving pebbles. She began to move around the house using her rollator and consumed her pain medication regularly to cope with the pain and disability. She travelled via taxis to facilitate her frequent polyclinics and physiotherapy visits. She required assistance from her maid during bathing as she found difficulty reaching her back.

After her surgery, she preferred to wear her surgical stockings as her thromboembolism-deterrent (TED) stockings were simply a struggle and too tight a fit. She needed her maid or daughter to assist her in wearing the surgical stockings. She resumed her physiotherapy a day after surgery. Physical adjustments such as installation of grab bars at the toilets and placement of toilet raiser were made at home to facilitate her movements. She was motivated in her instructed exercises of straightening and raising her legs. She showed her infected wound at the incision of right hip and explained that she was on follow-up for wound cleansing at nearby polyclinic. When she was informed by the doctor that

nylon sutures used during the surgery could cause a wound infection and itch, she tried to remove the nylon whiskers on her own at home.

Personal factors

Personal beliefs

She valued her independence and especially so when her husband passed away eight years ago. She believed that facing surgeries was easier for her as she had been used to the familiarity of surgery, anaesthesia and ward life in her working life.

Cultural values

As a Christian, prayers were an important source of inner strength to her. She had not been able to attend church for the past one year as her maid goes out on Sundays. Kate also embraced Tibetan Buddhist teaching of Medicine Buddha and practised chanting in her group. She held a firm belief that prayers in any religion strengthen one’s spiritual faith.